MACWORLD

June 1985 $3.95
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The Macintosh™ Magazine

Mac Compositions

Anyone Can Make Music, Macintosh Style

Itzhak Perlman on the Art of High-Tech Music

Linking up to Dow Jones

Complication vs. Integration.

Is your computer space about to be condemned?

Do you spend hours each day looking for your program disk?

Let's face it. Mac mess is no fun. It's frustrating and a terrific time waster.

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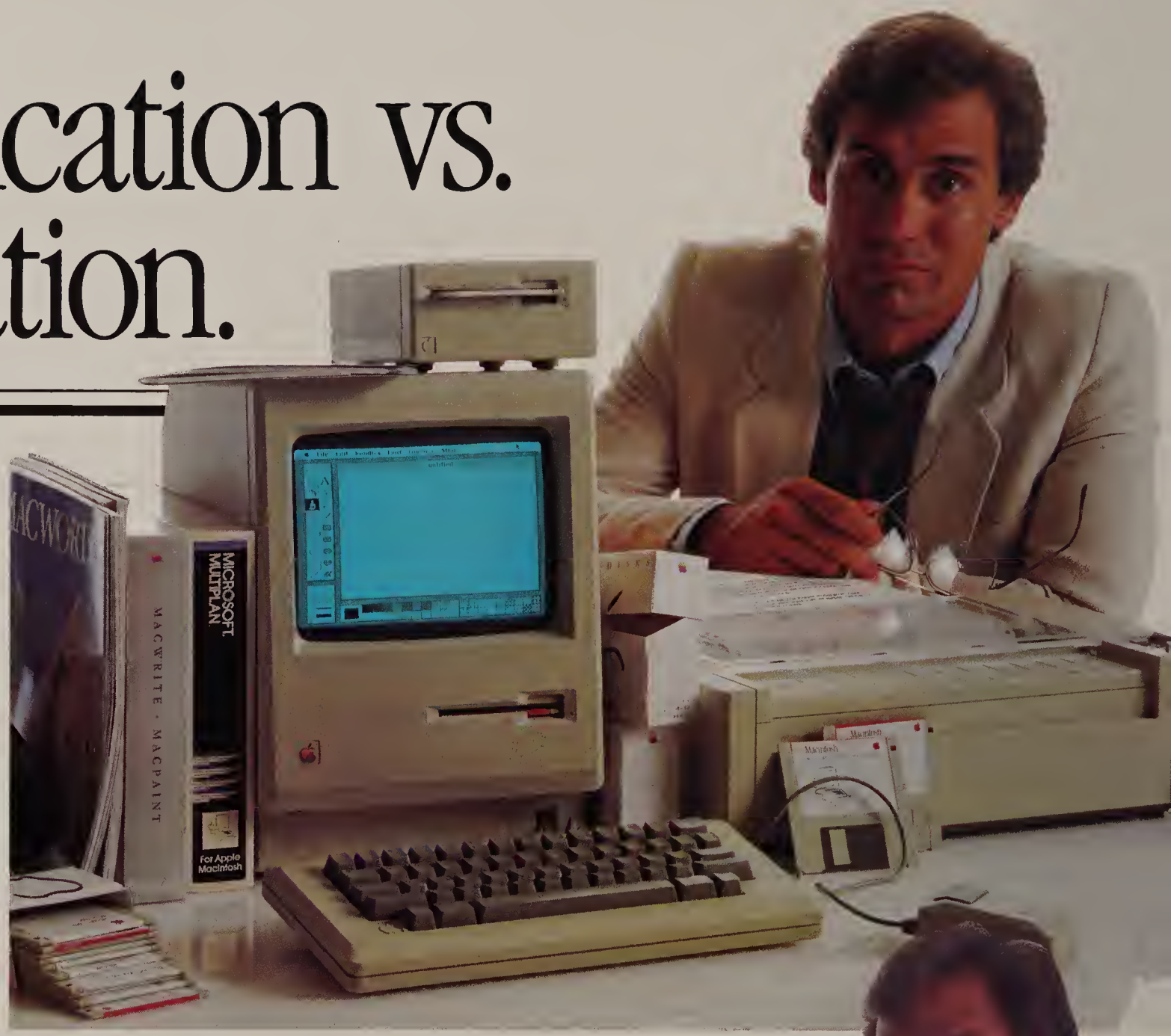

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*As seen at the Macworld Exposition in San Francisco.

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MACWORLD

June 1985 *The Macintosh™ Magazine*

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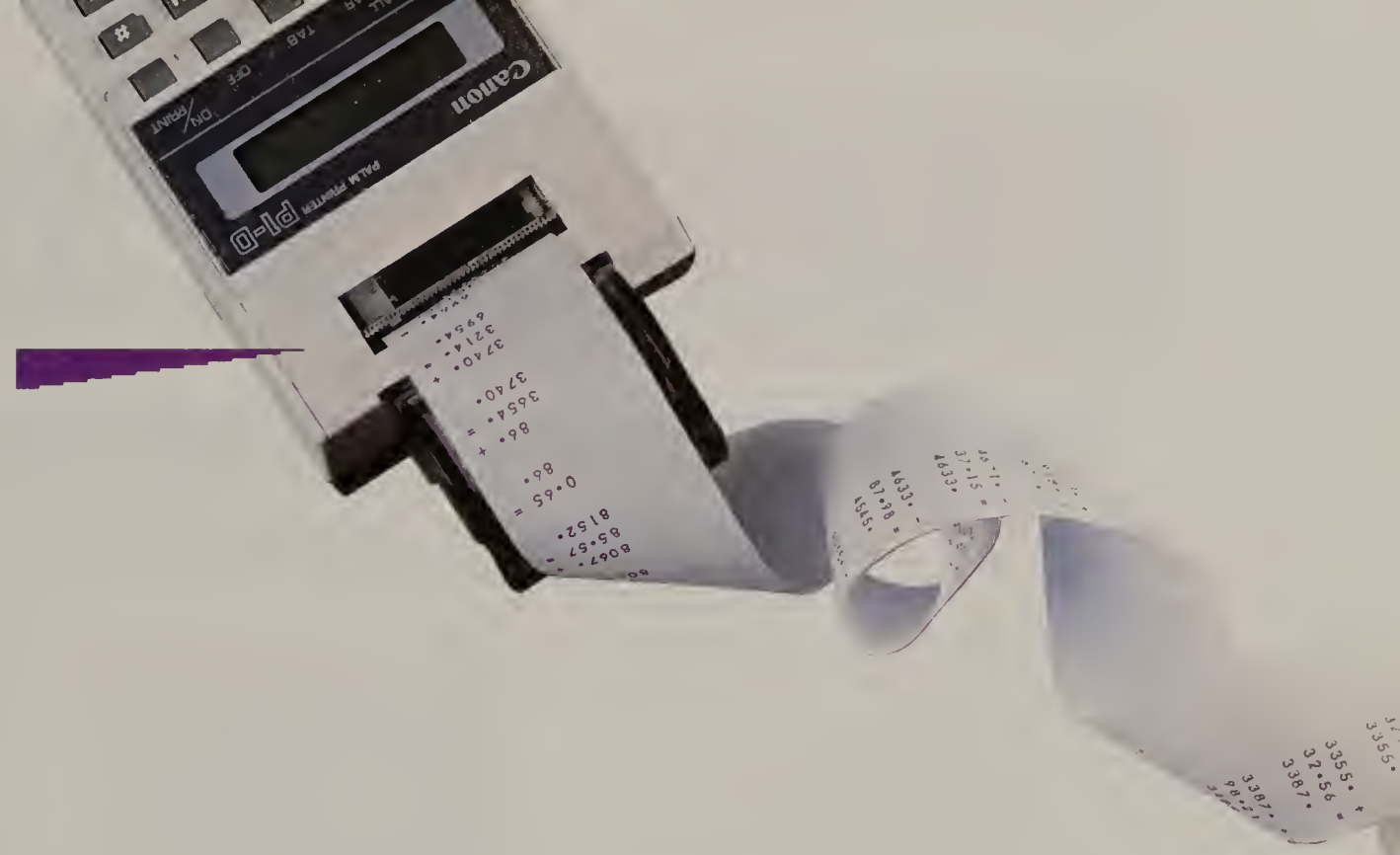

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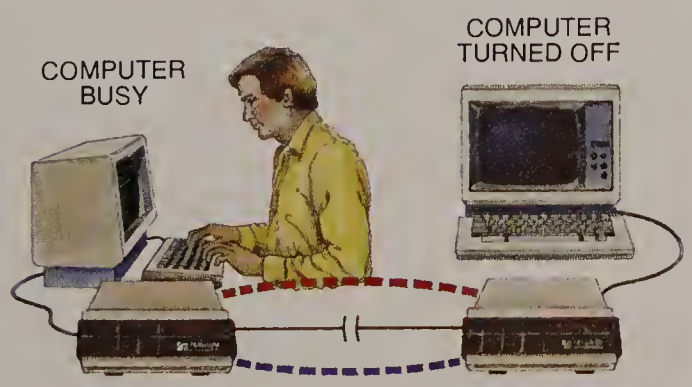

Amazing but true, your ProModem 1200M answers the phone, collects messages up to 50 pages long, sends out electronic mail, and displays all messages sent or received even though you are gone and MAC is busy or turned off. Thanks to ProModem 1200M, expensive hard-to-use communications software is not needed. The communications is in the modem, and electronic mail becomes a background function, where it belongs.

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can do some

Apple's Macintosh, "the computer for the rest of us," is probably the most advanced and easiest to use computer on earth. But until now, Mac couldn't be taken seriously for word processing. Enter Microsoft Word for the Macintosh. Mac's professional word processing program.

Word runs the most popular letter quality printers. It doesn't limit your manuscripts to 10 pages or even 50 pages. Because one Word document can hold as many pages as you can fit on a disk.

And Word not only sets up footnotes, columns and special formats in a flash, it has a whole disk full of other features to make your writing go faster.

Word does windows.

Unique to Word is its ability to "window" up to four pieces of work on the screen at once.

So while you're typing one document, you can have pages from three others on the screen for reference. Or to cut and paste between documents quickly.

Which can save a lot of the time you'd spend opening and closing files.

Key phrases at a keystroke.

If you have a lot of stock paragraphs you use in your writing, Word's glossary feature puts them at the tip of your typing fingers. Just store the pieces of text you need and you can recall them instantly.

And if you want an alternative to mouse work, you can run your Mac the old fashioned way. Because Word gives you the option to execute commands from the keyboard.

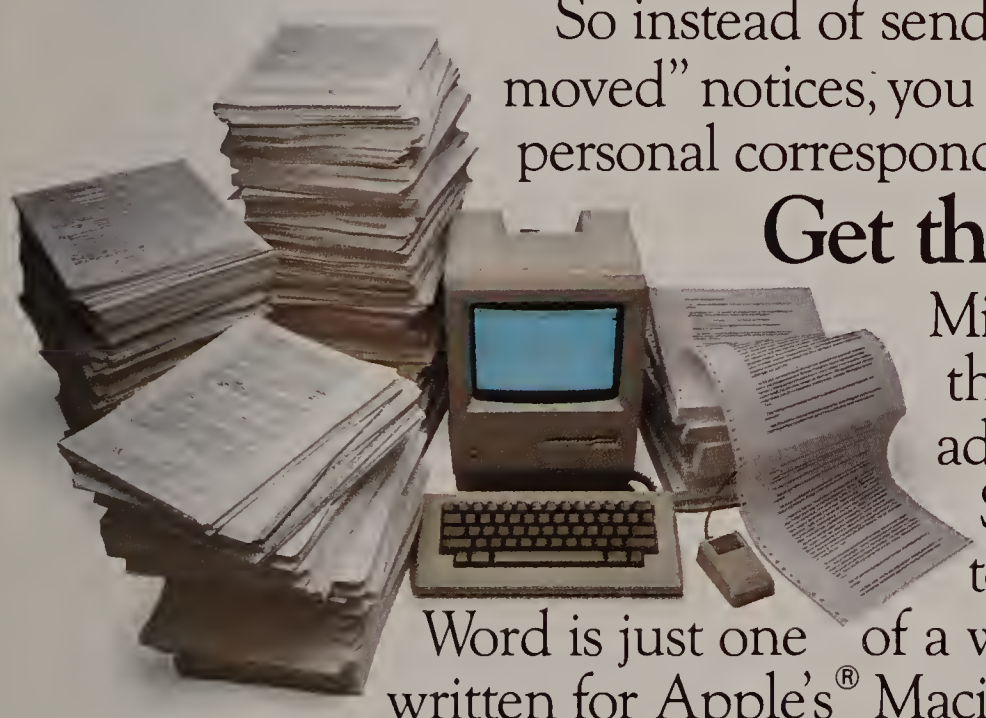
By the way, you don't have to write off your MacWrite documents to convert to Word. It'll run them all right off the bat.

rest of us serious writing.

Reader-friendly form letters.

With Microsoft® Word, you also get a sophisticated "conditional" text merging feature that lets you make customized form letters and documents.

So instead of sending out 800 "Dear Client, we've moved" notices, you can mail a letter that will read like personal correspondence.



Get the max out of Mac.

Microsoft Word has scores of features that have all been designed to take full advantage of Mac's easy operating style. So you don't have to be a professional to use it.

Word is just one of a whole family of programs we've written for Apple's® Macintosh.™

Which means it can exchange data with Microsoft Multiplan,® Microsoft Chart, and Microsoft File. And because our programs work alike, if you learn one, you're well on your way to learning the rest.

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So as of now, you have everything you need to put Mac to work. Just give it the Word.

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Now data do look base.

The Spokesman

PRICE LIS

Effective January, 1985

Item Number	Product Description	Price
AC 2345	Water Bottle	15.00
AB26L	Ladies 26" Breeze 10 Speed	179.00
AB200	Bicycle Built For Two	249.00
AB100		69.00
AB27M		
HT100		
FCA911		
FCA901		
5792		
5796		
5650		
BBS200		
BBA101		
BBA102		
27AW		
26AW		
SB 231		

The Spokesman

STOCK BOOK

Description Handlebar Tape

Item Number HT100

Opening Stock 20

Last Inventory Date January 10, 1985

Reorder Point 8

Closing Stock 10

Current Inventory Date March 31, 1985

Understocked by -2

Vendor MiracleTape Inc.

Vendor Address 66 Tacky Drive Stickyville, MA 01701

Comments Available in brown, red

To: Acme Water Bottle Sales
2389 E. Salem Drive
Kiokuck, Iowa 23668

To: American Bicycle
234 Main Street
Philadelphia, PA 03456

To: MiracleTape Inc.

The Spokesman

12 Bearing Street Wheeling, W.VA 26055

March 6, 1985

Jeremy Williamson, Jr.
1456 East Raybourne Road
Farmville VA 23944

Dear Jeremy:

Thank you for your recent order from the Spokesman Company. We are currently processing your order for immediate shipment. The following list represents the totals we have received in our shipping department.

2	27" alloy wheel	# 27AW	at	$62.00	$124.00
1	Seat Post	# 5792	at	$22.78	$22.78
4	Brake Shoes	# BBS200	at	$3.00	$12.00
2	Saddle Bags	# SB 231	at	$38.00	$76.00

Total Order: $234.78

I am confident
products for yo
free number if
modify the or
telephone pri
adequate noti

Thank you a
again in the

Sincerely,

John L. Sp

The Spokesman

Vendor	Description	Item Number	Closing Stock	Unda Stocke
Acme Water Bottle	Water Bottle	AC 2345	8	4
Totals for Acme Water Bottle Sales		Unique Items 1	Units in Stock 8	Reorder units 4
American Bicycle	Ladies 26" Breeze	AB26L	3	-1
American Bicycle	Bicycle Built For Two	AB200	4	8
American Bicycle	Solo Unicycle	AB100	5	1
American Bicycle	Mens 27" Blazer	AB27M	3	1
Totals for American Bicycle		Unique Items 4	Units in Stock 15	Reorder units 9
MiracleTape Inc.	Handlebar Tape	HT100	10	-2
Totals for MiracleTape Inc.		Unique Items 1	Units in Stock 10	Reorder units -2
Miyaka Bicycle	Chrome forks for 27"	FCA911	2	1
Miyaka Bicycle	Red Flyer Bike	FCA901	4	1
Totals for Miyaka Bicycle		Unique Items 2	Units in Stock -6	Reorder units 2
			2	1
			5	3
			3	3
			Units in Stock 10	Reorder units 7
			Units in Stock 49	Reorder units 20

$5.95
$78.85
Total
$15.95
$1.75
$14.65
Total Restock Cost
$65.15
Total Restock Cost
$1,330.81

The Spokesman

PURCHASE ORDER

To: Weinmann, USA
88 Skid Row
New York, NY, 01103

Description	Item Number	Units	Unit Price	Extended Price
Brake shoes	BBS200	2	$0.50	$1.00
Brake lever, right front tire	BBA101	1	$5.45	$5.45
Brake lever, left front	BBA102	2	$5.45	$10.90

Amount of Purchase order:	$17.35
Sales Tax:	$1.12
Total Amount of Purchase order:	$18.47

esn't have to

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Because just *having* information isn't enough. You have to be able to do whatever you want with it. Arrange it. Rearrange it. Massage it. Embellish it. Make it into something you can use. Easily.

FileMaker™ lets you not only store and organize your business information, but manipulate it in limitless ways, to create literally any kind of form or report you want.

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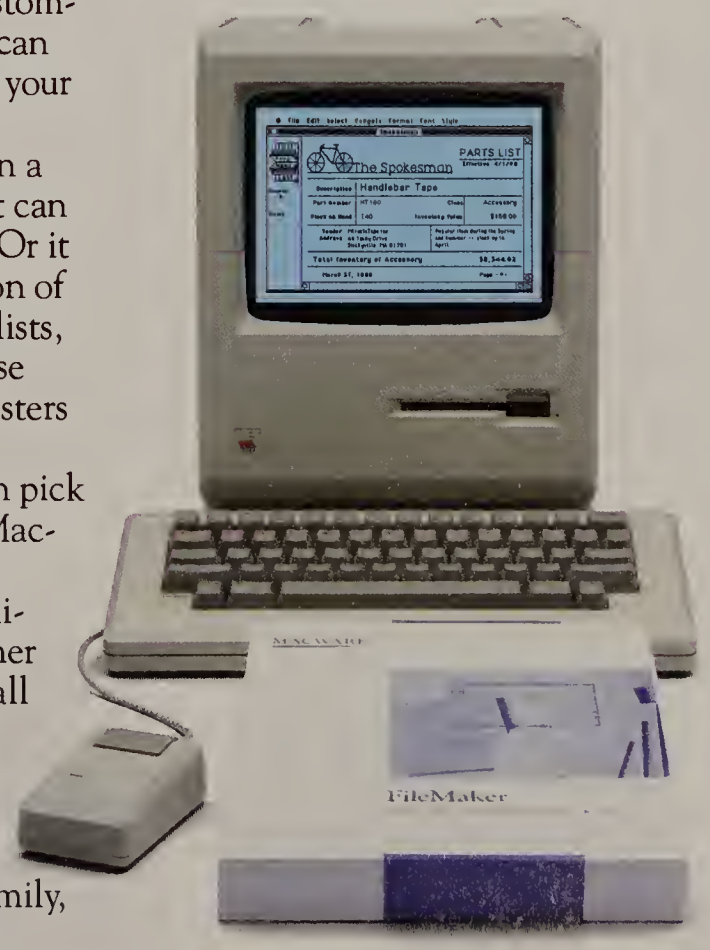
So what might have been a dreary order acknowledgement can now be a clear, friendly letter. Or it can be a meaningful comparison of inventory by vendor. Or parts lists, receiving verifications, purchase orders, labels, name badges, rosters and hit lists.

With FileMaker, you can pick up from other programs, like MacWrite,™ MacPaint,™ MicroSoft Plan,™ Jazz,™ and share the applications you've created with other members of your team. You get all the tools you need to easily consolidate group efforts into one database.

And FileMaker takes full advantage of the Macintosh family, including the Macintosh XL,™ Macintosh Office™ and LaserWriter.™

So for $195 (suggested retail), things could look considerably better for your entire division, department, professional practice, retail operation, club, organization, or principality.

Contact your Macintosh software dealer for a demonstration, or call 1 800 MACWARE to find out where you can get FileMaker in your area. From Forethought, Inc.



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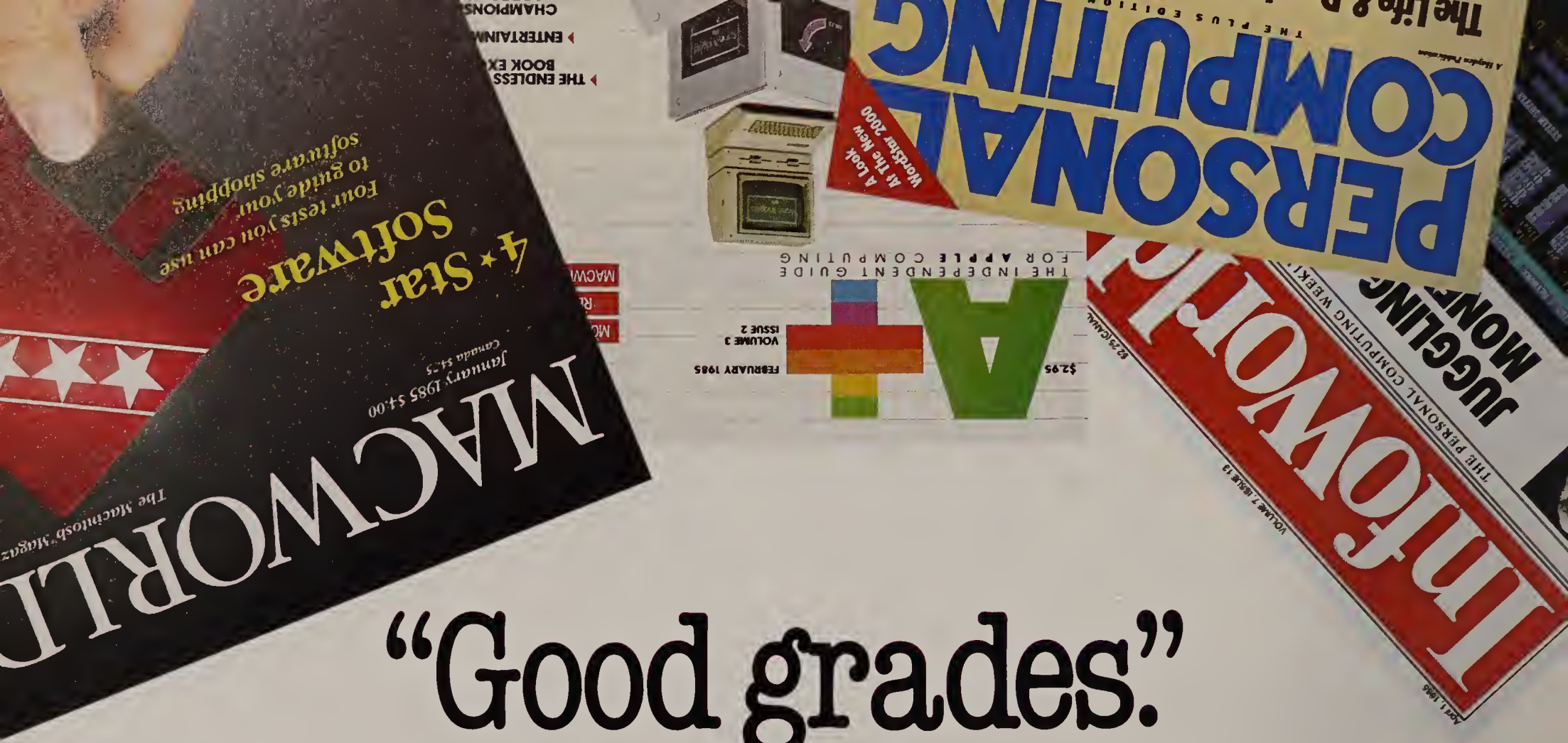

"Good grades."

InfoWorld

REPORT CARD

OVERVUE

	Poor	Fair	Good	Excellent
Performance	☐	☐	☑	☐
Documentation	☐	☐	☐	☑
Ease of Use	☐	☐	☐	☑
Error Handling	☐	☐	☑	☐
Support	☐	☐	☑	☐

The report cards are in. And OverVUE has earned high marks among databases for its mind boggling speed, its incredible range of features and its amazing power. Now we could elaborate on these things ourselves. But we figure you'd rather hear it straight from the experts who make out the grades:

Reported ***INFOWORLD***, April 1, 1985: "OverVUE is rich in features that rank it with the more sophisticated databases available for the Macintosh...the more we worked with it, the more we came to respect OverVUE's power and capabilities, not to mention its speed."

According to ***MACWORLD***, January, 1985: "OverVUE is a fascinating program. A cross between a data base manager and an electronic spreadsheet....Its ability to share data with Multiplan makes it a must for serious financial work."

A+, February, 1985 said: "OverVUE is Macintosh software the way it was meant to be....Speed Demon....geared especially for lightning fast performance. ...Extremely easy to master."

PERSONAL COMPUTING, February, 1985 wrote: "OverVUE can execute almost all of its commands in the blink of an eye, or two blinks at the most....Its speed and math capabilities go well beyond what most personal computer data base programs have achieved....it definitely can make the Mac you already have a much more useful tool."

Apple placed OverVUE on its demanding ***"MUST BUY"*** List, November, 1984: "Does more with less effort than anything we've ever seen....A Gem."

Stated ***CLUB MAC***, September, 1984: "I know of no other data base that can touch it....Lots of power here. No doubt about it, this is a sweet system....It sets a behavioral standard for programs in its class."

Praised ***MACAZINE***, December, 1984: "It may be the best money you've ever spent....The amount of pure data analysis one can do with their files is mind boggling. ...This is the Macintosh at its best.

Well, there you have it. We could have filled up pages with quotes like these, but we think you get the picture. Obviously, we're not the only ones who think OverVUE is terrific. An enormous number of knowledgeable experts feel pretty much the same way.

So, don't you think it's high time you tested OverVUE yourself? Call or write for more information:

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David Bunnell

Can the Mac Save Apple?

A hard disk and 512K make the Mac a first-rate office computer, with or without a network

Anyone interested in the personal computer industry has frequently heard that Apple Computer's future rides on the Macintosh's success in the office. The Apple II's dominance in the educational and high-end home market (Commodore 64s aside) is dismissed by industry watchers. Common computer sense says that the Apple II will shortly be made obsolete by more advanced computers in the same price range. The early arrivals among these high-powered, low-priced machines, the Commodore Amiga and the Atari ST, should be out about the time this column is—in time to make a significant impact on fourth-quarter computer sales, which are usually the highest of any quarter's.

Many PC gurus are impressed by the new machines' fast processing speeds, large memories, and high-quality color graphics. They assume that third-party software publishers will create the software necessary to knock down the Apple II's gigantic software haystack.

These gurus underestimate the importance of a software base. A solid software base gives a computer clout and offers the user lots of choices. Next time you're in a bookstore, pick up an Apple II software directory and thumb through it. You'll be amazed at the mind-boggling number of programs available for the machine. The Apple II has too stable a foundation to drift into oblivion. Even the Apple people can't seem to undermine it. What if they opted to come out with a 32-bit Apple II-compatible computer? Or an inexpensive, color Macintosh?

Or what if the Apple II keeps on selling like it has for the past seven years?

On the other side of the disk, even though the personal computer business market was launched by the Apple II and *VisiCalc,* it really blasted to the ionosphere with the IBM PC and Lotus *1-2-3*.

The Apple II is strongest in the home and educational markets, but both niches are unpredictable and full of bugs. So, the reasoning goes, it's all up to the Mac to save Apple.

If Apple plans to recapture its glory days, its first step is to sell the Macintosh to the Fortune 1000, which will set the example for small businesses.

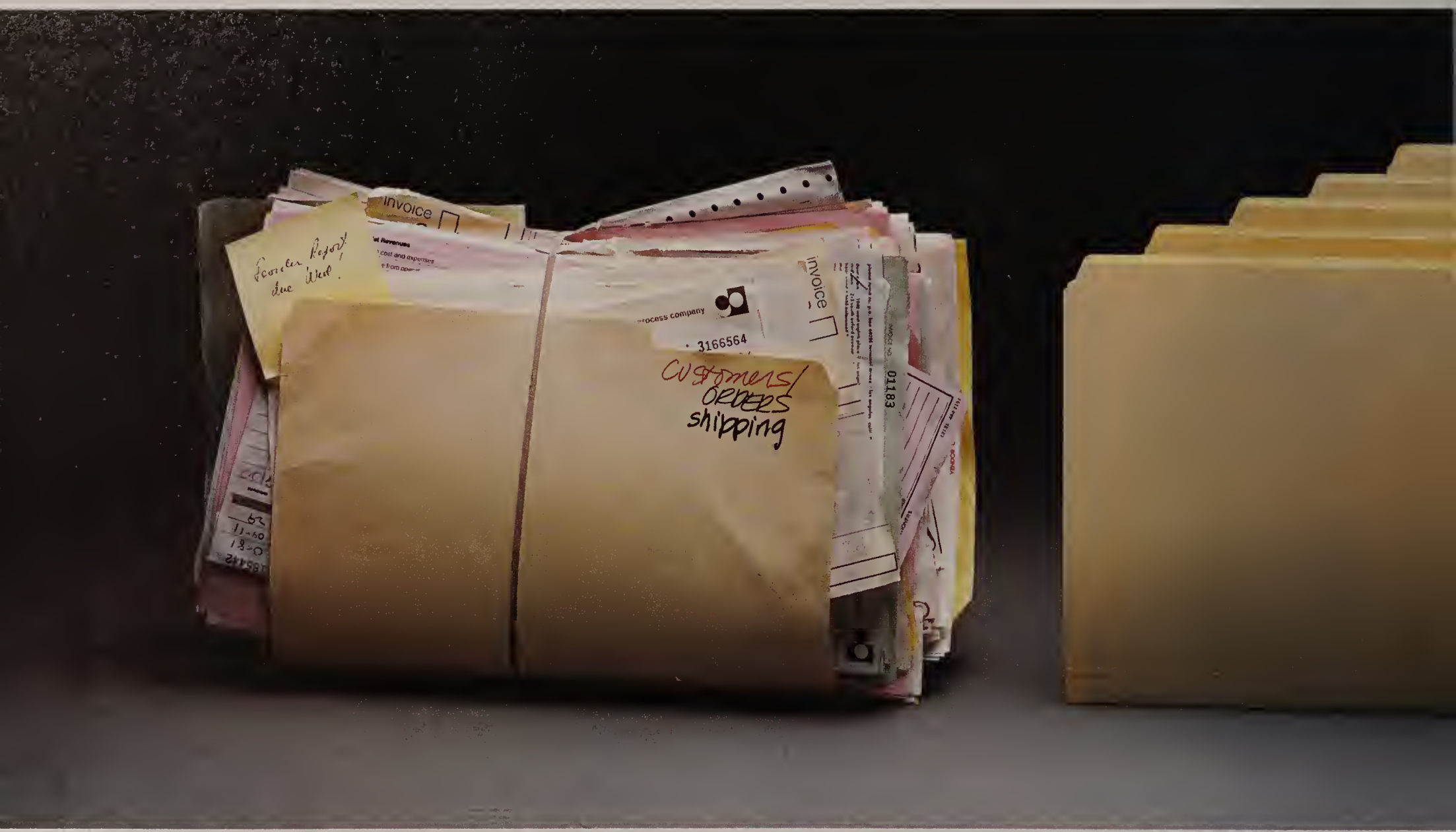
Many people think that AppleTalk, the Macintosh Office network, is the key to selling to large businesses. Corporate personal computers need to talk to each other and their larger counterparts—mainframes and minis. But this concept doesn't take into account the IBM PC's success as a standalone device. PC networks do exist; even IBM introduced one. But network software development has been extremely slow, and the road to a decent local area network perilous. The sad reality is that PC networks are still largely an MIS fantasy.

I know of four common justifications for personal computer networks:

- You save money by sharing peripherals, such as hard disks and printers.
- You eliminate paper by using electronic mail.
- You access corporate databases and gain more power through mainframe-micro links.
- You share and update data.

Networks don't really save you money. Network hardware and software is as expensive as hard disks, printers, and personal computers, which continue to come down in price. Soon each user will be able to have a complete workstation—including a hard disk and a printer—for less than the cost of installing a network.

Which is the better way to



Any growing business needs to organize, analyze and use data.

Customer orders. Shipping records. Inventory. Billing. Prospect lists.

Now, depending on your Macintosh software, you can manage data one of two ways.

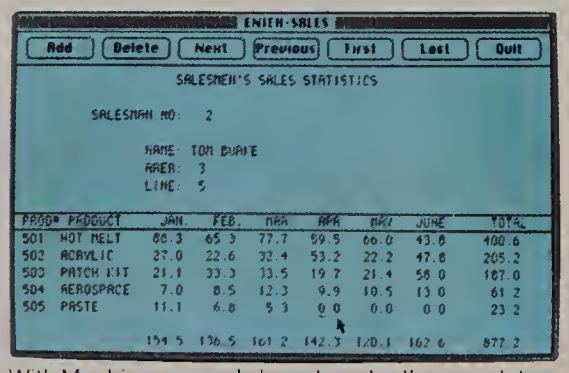
The simple, stuff-everything-into-one-file theory of data management.

That's how ordinary filers and information managers work.

You jam data into a single file that includes every piece of information you might ever want to know.

3	1	ROGER ACRES	6	5	503	PATCH KIT	40.0	26.7	13.
4	2	TOM BURKE	3	5	501	HOT MELT	88.3	65.3	77
5	2	TOM BURKE	3	5	502	ACRYLIC	27.0	22.6	32.
6	2	TOM BURKE	3	5	503	PATCH KIT	21.1	33.3	33.
7	2	TOM BURKE	3	5	504	AEROSPACE	7.0	8.5	12.
8	2	TOM BURKE	3	5	505	PASTE	11.1	6.8	5
9	3	CHARLIE CARR	11	5	501	HOT MELT	86.3	54.2	77.

With an ordinary data manager, you have to re-enter existing information every time you enter new information. Pretty inefficient.



With MacLion, you only have to enter the new data that has changed. Not only that, you can design your own data entry screens. Now, which is the most efficient way to manage your business data?

The problem?

Well, if you have a sales order entry file, every time you enter new data about a customer's order, you also have to re-enter all the existing data about your customer.

Repeat, repeat, repeat.

Worse, if you ever want to move the data from your sales order entry file to develop a new file, without having to rework it all over again, there's one small problem.

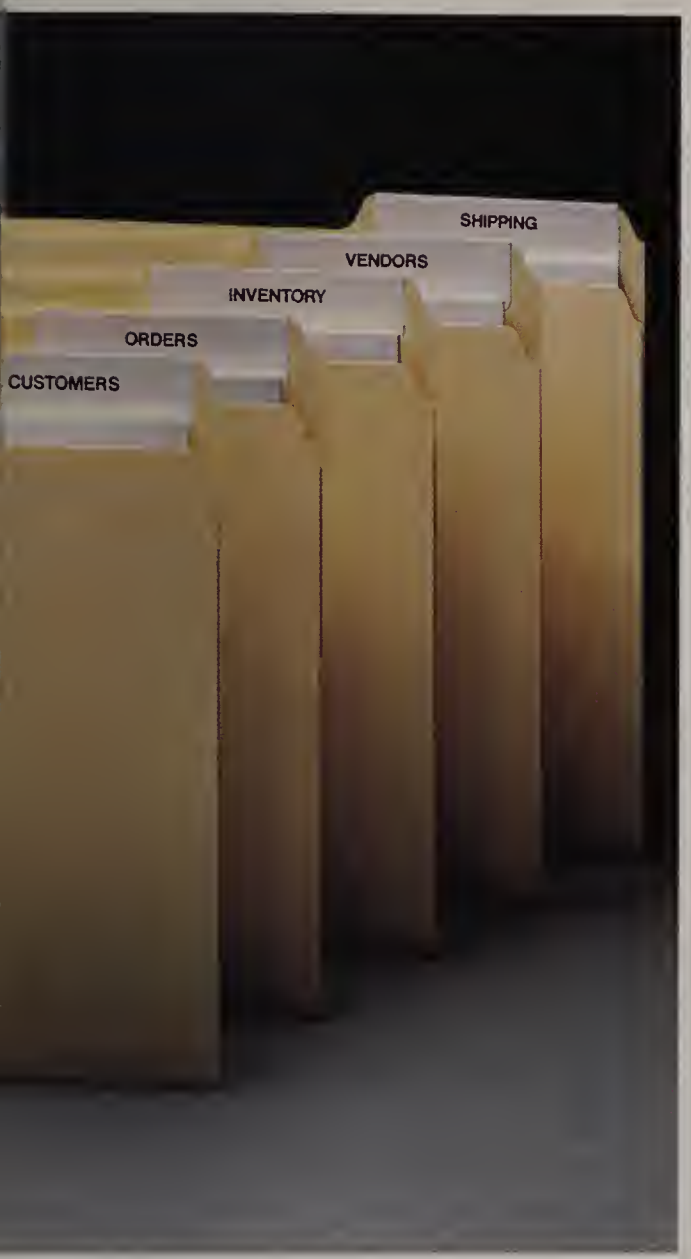
You can't.

Okay. Let's get serious.

MacLion™, on the other hand, is a true relational database management system.

MacLion.™ Serious database power for serious

manage your data?



So instead of trying to jam all your business data into one massive file, you can set up several smaller, more manageable "relations." (Picture them as a series of neat file folders.)

The advantage?

In a sales order entry system, one relation contains biographical data about your customers that doesn't change. Another has their order data that does.

There's no duplication.

So when it's time to update customer orders, you only have to enter in new data. Not re-enter what already exists. And you can develop entirely new applications for your existing database just by adding new relations.

That's the most efficient way to manage your data.

For a MacLion demonstration, see your dealer. Or, send for our "Serious Buyer's Guide to Database Management Systems," which includes a demonstration disk

Simple vs. serious.

And MacLion gives you some other remarkable features, too.

You can design and generate your own custom data entry screens and reports. Just by clicking your mouse through Macintosh pull-down menus—without programming.

Or, if you're a programmer at heart, you can also use MacLion's built-in procedural language and add even more specialized functions.

That's serious database power, only possible with MacLion.

plus complete information on what a database management system can do for your business.

Get serious—with MacLion.

MAC LION™

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Macintosh users.

Circle 66 on reader service card

Electronic mail may be the best reason for installing a network, not because it saves trees but because it provides instant communications capabilities to personal computers as close as the next cubicle or as far away as Japan. Unlike standard mail, electronic mail lets you monitor when your message was received and read—or at least looked at.

But you don't need file servers and shared hard disks to use electronic mail. Personal computers need only modems and a phone line, or a direct cable connection, and the right communications software to start communicating electronically.

As for accessing corporate mainframes, only a small percentage of business users really need this luxury. Memory should reside on your desktop, not in some distant, giant computer. Large computers are necessary in certain corporate departments, such as accounting, but surely the vast majority can survive without a mainframe.

As a final blow to the office network concept, I don't even think that sharing data is such a great idea. In fact, most people don't want to share their data until it is committed to paper. Personally, I can't imagine myself sitting at a terminal connected to five fellow staffers doing budgets. I'll take a reliable stand-alone office computer over a network any day.

I recently turned my Macintosh into a super office computer by expanding it to 512K and adding a Tecmar MacDrive hard disk. It was a relatively simple operation; I connected the hard disk without the advice or aid of our technical geniuses here at the magazine, who are usually required for a similar IBM upgrade. I merely plugged in the hard disk and booted my Mac with the accompanying system disk. It was fairly simple to create volumes to store different types of software on the hard disk.

The only drawback was that many programs, such as *Microsoft Word,* are copy protected. While you can load them on the hard disk, you can't start them without first inserting the master disk.

This limitation is largely overcome by *Copy II,* a program that lets you copy Microsoft's programs onto a hard disk. So I put *MacPaint, MacWrite, Word, File, Chart,* and *Multiplan* in a volume called Programs—along with the database manager *OverVUE,* an intriguing program called *TimeBase,* and a folder each of games and utilities. My attempt to load *ThinkTank 512* proved a bit of a problem due to its copy-protection scheme, which one of our techies describes as "tied to the disk." I could load it on the hard disk but couldn't open it without the floppy.

The results of adding a Tecmar hard disk are beautiful. Instead of using both the Macintosh and the PC in my office, I've been using the Mac alone. I still

ExperTelligence™ has the "tools" to transform your Macintosh™ into a powerful Artificial Intelligence workstation. **ExperLisp**™ is the first complete implementation of LISP on a microcomputer. Developed on a Symbolics 3600™, the compiler generates efficient MC68000 code providing speed and function ideal for the development and delivery of sophisticated AI applications. **ExperOPS5**,™ by Science Applications International Corporation, is a complete implementation of the well-known OPS5 expert systems building tool. It provides a fast and efficient method for constructing complex Expert Systems.

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JUST ARRIVED!

The first complete desk management program for the Mac.

It's here! A powerful software program featuring dynamic storage/retrieval capabilities for your Mac. It's called THE DESK ORGANIZER®. And it's ready to help you organize yourself, your work, you name it.

At the core of THE DESK ORGANIZER is a *free-form filing system* that files anything you want, just by typing it. Notes. Letters. Reports. Phone numbers. Names and addresses. And you can retrieve or update at any time.

Surrounding this system are easy-to-use tools that add a new dimension to your Mac:

THE DESK ORGANIZER's *extensive correspondence facility* replaces Mac's limited notepad. Its *calculator* adds an electronic paper tape—and a powerful formula calculator (the Mac has neither). And THE DESK ORGANIZER offers *unlimited alarms* that chime gently to remind you of meetings. Plus a *telephone dialer* that automatically searches files, locates the proper number and connects you.

What's more, THE DESK ORGANIZER increases the filing capacity of the Mac—by storing hundreds of Mac notes and letters on a single diskette.

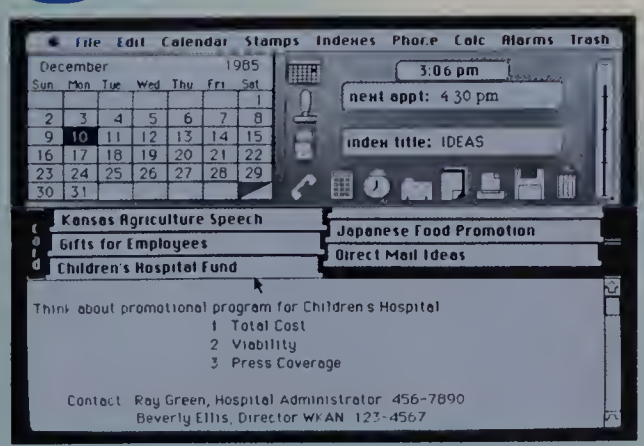
Born to run on the Mac, THE DESK ORGANIZER can *co-reside with other Mac programs*—to keep you completely organized no matter what you're working on.

To get this infallible electronic secretary for **only $99,** see your Mac software dealer.

OR CALL WARNER SOFTWARE (212) 484-3070.

Warner Software, Inc., 666 Fifth Ave., New York, NY 10103
A Warner Communications Company

ONLY $99



INCLUDED FREE: 25 business form letters and a library of useful formulas. Runs on 128K and 512K Macs.

Truly a major software breakthrough!

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SOFTMAKER II (2.1 version) makes use of the Macintosh environment with pull-down menus, windows, mouse, etc. Your Macintosh Computer is ready and waiting for SOFTMAKER II which is especially designed and created by RGS for Macintosh.

Includes so many features; much faster access to records; up to 500 fields in each record; has RGS SuperScan to scan any field in data base; allows for up to 50 screens; includes complete and total Math Package; provides complete job control; has password and screen protection. Users can move data between your SOFTMAKER II program and other programs via the Macintosh Clipboard. For professional results and you don't have to be a professional; includes complete documentation; 160 page user manual. ALL COMPLETE with suggested retail of $199.00.

ORDER TODAY from your computer retailer. If he cannot supply you, send us his name or order direct . . . $199.00 prepaid. Sorry No C.O.D.'s. Illustrated literature and information are available without charge. WRITE . . . RIGHT NOW.

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use a Compaq Plus at home, but only because my domestic Mac is a 128K machine without a hard disk. With the exception of the system disk and *Think-Tank,* all my floppies at work can be stored in the desk drawer. Not having to deal with disks is wonderful. Organizing files has become incredibly easy, and disk space, finally, is no longer a problem. When I open a file, the machine finds the appropriate application and loads both into memory. The Mac is a smart little guy.

One particularly pleasant surprise was that my hard disk software includes a printer buffer, so I can start new tasks while my last thought is still being printed out. A 512K Mac with a hard disk is definitely a top-notch office computer.

In October we will publish a special edition of *Macworld* called The Case for the Macintosh Office. Although I believe the battle has already been won, there are many skeptical—if not downright hostile—PC stragglers who doubt the Mac's chances.

The Case for the Macintosh Office will be mailed to all our subscribers and to over 50,000 corporate personal computer users who handle hardware or software acquisition for their companies. We think this issue will tell the tale and help turn the tide in Apple's favor. □

WITH MEGAHAUS, YOU CAN TURN YOUR MACINTOSH INTO

NOW! NEW, SUPER SOFTWARE FOR THE MACINTOSH!

Look! It's a bird! It's a plane! No...it's four super new programs from Megahaus Corp.

Each one compliments the other to make your Macintosh into a super machine by forming a powerful, integrated system!

MegaMerge

MegaMerge is THE mail merge program for MacWrite! With MegaMerge, you can use MacWrite to create form letters, print mailing labels and more! You can even overcome MacWrite's limited document size by "chaining" several documents together and printing them as one, long document!

MegaFiler

If you do any filing at all in your home or office, you NEED MegaFiler!

It's the file management system for the Macintosh that lets you file and retrieve information with EASE!

You can store names, addresses or other information using MegaFiler's library of ready-made files for:

- Mailing Lists
- Customer Orders and Invoices
- Home Management
- Business Inventory
- Customer Files
- And MUCH more!

You can also design your own files using MegaFinder's fun-to-use design file! You can also print lists, tables, mailing labels and MegaMerge mailing lists. You can even incorporate them into MacWrite and other Macintosh applications!

Here's what else MegaFiler can do:

- Sort information on any field.
- Find forms based on any criteria you choose. For example, find all the people who live in California whose names begin with "S" and own a Macintosh and print them in zip code order.
- You can manage several files at one time.
- You can cut information from one file and "paste" it into another.

MegaFiler is truly the file management system you've been waiting for.

Discover how super it really is!

MegaForm

MegaForm is an easy-to-use forms and reports generator. You can use MegaForm to create actual-size forms and reports such as:

- Invoice Forms
- Order Forms
- Purchase Orders
- Expense Reports
- And MUCH more!

With MegaForm you can draw forms and reports exactly the way you want them to appear. It will also help you fill out the form you just created, using MegaFiler. With MegaForm you can also draw, file, calculate and even sequentially number your forms!

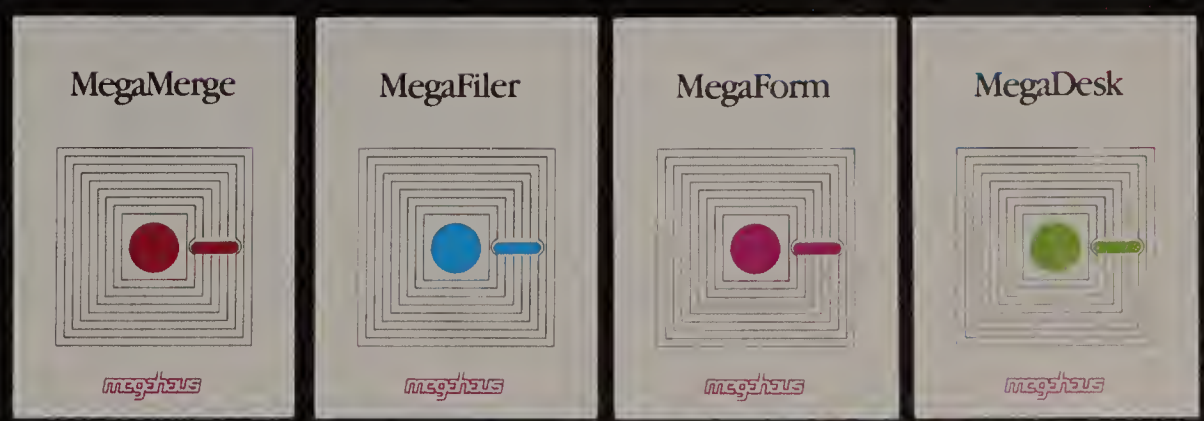
MegaDesk

MegaDesk is something almost all of us can use. With MegaDesk, you get three desktop accessories...in other words, a program that you can run at the same time as other programs.

With MegaDesk you'll get: • A **Desktop "Appointment Book"** which is a calendar that shows you month, day and date. Every day has it's own page on which you can jot down information. • A **"Quicklook"** accessory which gives you a brief look into any MegaFiler file on your desk. • A **Reference Card** accessory which allows you to flip up a "window" containing any information you choose. We supply a complete library of reference cards and you can also add your own!

The Megahaus family of software products truly does make your computer work harder and easier. They can also turn a mild-mannered Macintosh into "Super Mac"...faster than a speeding bullet.

The Megahaus family of Software will turn your Macintosh into a "Super Mac"



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The action packed game.

ACTION

They're coming! Hordes of them! Enemy helicopters, transports, paratroopers and tanks. Your anti-aircraft gun chatters, shooting mouse-guided shells. Let too many of those paratroopers get on the ground and their banzai attack will overrun your position. Quick, to the mortar, take out those ground troops!

Look out, the transport plane just air-dropped a tank. Back to the anti-aircraft gun. A tank that makes it down to the ground shoots with deadly accuracy. And then . . . the jets come screaming in like banshees. Their air-to-ground missiles don't miss!

HOW LONG CAN YOU HOLD THEM OFF?

REAL SOUND

This game has the most realistic sound generation available on a Macintosh. Helicopter rotor wash, the drone of transport planes, the shriek of an attack jet, tank fire, explosions . . . **actual recorded sounds** were used in the making of this game. You won't believe your ears. Is this a Macintosh or is it a cassette tape player?!?

A COLLECTOR'S ITEM

Besides all the fun you'll have playing it, you'll want to own this game so you can show off the graphics and sound capabilities of your Mac to all your friends. Every Macintosh owner will want to have **Airborne** in their collection.

See your local dealer or
you can send $34.95 to
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Feed your Mac.

Introducing ThunderScan.™

Now you can turn any printed image into a detailed, high-resolution Macintosh graphic.

Just roll your original into your Imagewriter.

ThunderScan scans and digitizes the image.

Presto! A high-resolution MacPaint document.

No doubt about it, Macintosh is one great graphics machine. But until now, Mac graphics have been limited to what you can draw with a mouse and what someone else has put on a disk. Consequently, taking full advantage of Mac's graphics capabilities has been tough. But now there's ThunderScan. The new optical scanning device that lets you feed your Mac a steady diet of graphics that are useful to you.

ThunderScan turns Mac's Imagewriter printer into an image reader. So you can digitize any printed image and turn it into a detailed, high-resolution MacPaint document. Anything, including forms, half-tones, photos, mechanical drawings, maps, floorplans, logos, signatures and more. From black and white and color originals. ThunderScan reproduces them at over 200 dots per inch and in 32 shades of gray.

ThunderScan's application software, written by Mac-team-member, Andy Hertzfeld, makes it an extremely versatile and useful tool. You can generate full-page images or selected parts of them. Enlarge and reduce them. Manipulate them. Control the contrast and brightness. Create your own personal image disk. "Cut" and "paste" images together, creating new documents. And print them out on your Imagewriter. Or send them by modem to another Mac. The possibilities are nearly endless.

No lights, no camera, just action.

What you see here is the complete ThunderScan system. You don't have to buy an expensive video camera. Just pop out your Imagewriter's ribbon cartridge, snap in ThunderScan and you're set. It can even work in the dark (maybe you can think of an application for that).

If you bought a Mac at least partly for its graphics, only to find you couldn't take full advantage of them, now you can. With ThunderScan.

At an introductory price of just $229, it's a small price to pay for a whole new graphics capability.

For more information or a ThunderScan of your own, see your dealer or call us today.

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ThunderScan

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MACBCOOL™ for your Macintosh™

A cooling enhancement module designed to keep your Macintosh cool and eliminate the threat of overheating.

FORCED AIR COOLING with a quiet efficient fan providing a continuous flow of fresh air through your Macintosh. The results are better reliability and longer operating life of your computer.

CONTROL CENTER OPERATION with system power distribution through your MACBCOOL module. Conveniently located front mounted power switches control both main power for your complete system and power for peripherals through two rear mounted power outlets.

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A PERFECT FIT because MACBCOOL is designed specifically for the Macintosh Computer. When positioned on the computer, a sturdy handle firmly locks the MACBCOOL module to the computer and substitutes for the Mac's built-in handle.

EASY INSTALLATION. No tools required.

A continuous flow of fresh cool air passes through your Macintosh cooling your computer's critical components.

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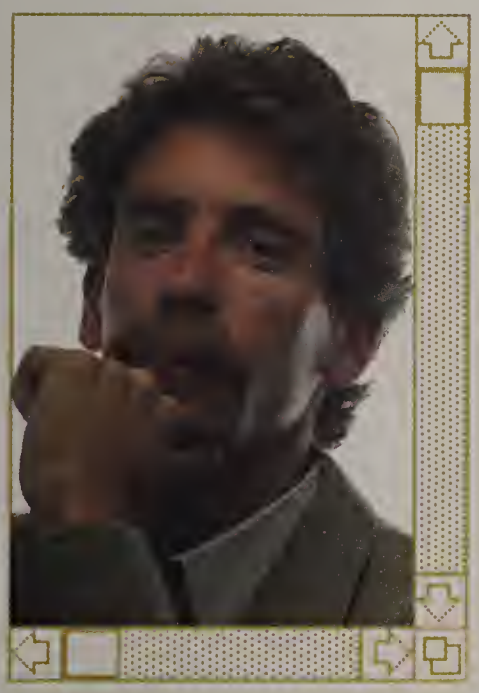
Daniel Farber

The Machine in the Garden

Is the universe looking more and more like a great machine rather than a great thought?



Imagine you're listening to this conversation:

"I think my buffers are full–I can't pack any more bits."

"Maybe you need to reprogram yourself–log on to the beach or the mountains."

"Yes, I need a good debugging. My CPU's been working too hard."

Now consider that this conversation could have taken place between overworked computer scientists, account executives at a prestigious advertising agency, or a psychiatrist and a patient. You know the computer culture has come of age when computerese becomes accepted slang among business executives and the literati and begins to seep into the officious pages of *Webster's*. Like other significant technological innovations, such as the wheel, the telephone, the automobile, and the television, the computer is having a profound impact on the way we work, as well as on our psyches.

There is one important difference between the computer and its precursors as it crosses the technological horizon, however. Unlike television, which is a passive medium for communicating information, the computer is an interactive medium, introducing a new level of intimacy into the human-machine relationship. Many people remark that using a computer is like communicating with a kind of intelligence–a mechanical mind that tells you when your program's syntax is wrong, checks your spelling and punctuation, informs you when your disk is almost full, outplays you at chess, calculates your income tax, and even gives you medical advice.

The growing presence of computers in our society and their effect on our minds and culture is the subject of Sherry Turkle's *The Second Self: Computers and the Human Spirit* (Simon & Schuster, 1984). A sociologist and pyschologist at the Massachusetts Institute of Technology, Turkle spent six years studying the evolving computer culture. Her study focuses on how the computer affects the way we think and perceive ourselves. The question she seeks to answer is "not what will the computer be like in the future, but instead, what will *we* be like?"

Machines that use ones and zeros to simulate human thought processes challenge our ideas about what it is to be human. According to Turkle, computers "stand on the line between mind and not-mind, between life and not-life, computers excite reflection about the nature of mind and the nature of life." She characterizes the computer as a psychological machine–a *second self* that provokes us to reflect about who we are. As the computer becomes more commonplace, sophisticated, and powerful, new metaphors inspired by the machine will be invented to describe the self.

Eventually, Turkle suggests, the model of the mind based on our emotional and logical nature may be replaced by a computational model. Or we may come to see ourselves as a hybrid, "built up out of the materials of animal, mind, and machine," writes Turkle. "Before the computer, the animals, mortal though not sentient, seemed our nearest neighbors in the known universe. Computers, with their interactivity, their psychology, with whatever fragments of intelligence they have, now bid for this place."

Meet The New Teachers...

MathFlash, WordPlay, and MacType

MathFlash: The math teacher that works

Always, flash cards are the method of choice to learn arithmetic. Now MathFlash makes it easy and fun.

For parents and teachers, MathFlash takes away the tedium of administrating rote drills. And for youngsters, MathFlash takes away the pressure and fear of failure.

MathFlash duplicates the flash card experience with a 3-dimensional picture of a stack of cards that flip up, one at a time. The child keys in the answer or points to a number on the screen. Right answers send the card to a "correct" pile that the child can watch accumulate. And as the child progresses, MathFlash displays other graphic rewards that recognize accomplishment.

Unlike game-type computer drills where making mistakes and playing with the program are more fun than learning, MathFlash only rewards accomplishment. And it does so with infinite patience, but without being boring.

MathFlash keeps detailed records to measure a student's progress and adapt drills to individual needs. One copy of MathFlash is good for the whole family—or the whole classroom. (Retail price: $49.95)

WordPlay: The word teacher that plays

Limber up your brain and beef up your vocabulary with WordPlay, the power tool for word puzzles. Use WordPlay to solve more than 50 puzzles that come with the program—or use it to help with the brain twisters in your daily newspaper.

WordPlay features crossword, diagramless, and other puzzles in a range of difficulties. WordPlay keeps all the fun intact, but eliminates the aggravation. No messy erasures, no getting stuck over one letter in the name of that pesky East Indian mulberry. Take a guess—if it doesn't work, try something else.

WordPlay lets you get help without actually cheating. Whether it's a single work, a section of the puzzle, or the whole thing. WordPlay can tell you (A) if it's right or not; (B) where the mistake is; or (C) the correct answer. You pick the amount of help you want.

Compete with your friends—WordPlay keeps track of all your scores. Save a puzzle in progress and pick it up later. Or print it out to work on when your Macintosh isn't handy. With WordPlay, you've got someone who plays your language. Retail price: $44.95)

MacType: The typing teacher that works

Touch-typing "games" look like a great idea. But when the novelty wears off, you're left with a frustrating (or boring) way to learn to type.

MacType is for people who want to type well, quickly. Based on the experience of a former touch-typing instructor. MacType gets you comfortable with the keyboard in just a few 15-minute sessions. Then you build your skill with MacType's training cycle: review, drill, test. And you use realistic practice text of words and sentence fragments that mix upper case, lower case, and punctuation.

MacType has no "Beat-the-Clock" drills to undermine your confidence. You cannot fail. You gain skills you can begin to use from the first day.

MacType offers advanced placement for rusty typists. It doesn't intimidate you with performance statistics, but you can see them when you want to. And if you start typing erratically, MacType turns on a metronome to even out your strokes.

MacType tracks your progress—it can handle more than 100 students. And when you reach your chosen goal, MacType prints out a personalized Certificate of Achievement. (Retail price: $49.95)

The new educational programs from Palantir make learning fun. And fun, a learning experience. Bring these friends into your home or classroom. Available from your dealer or Palantir Software, 12777 Jones Road, Suite 100, Houston, Texas 77070. Call (713) 955-8880, or you may contact our WATTS lines. (800) 831-3119 (Texas), (800) 368-3797 (National), or (800) 235-0025 (Canada).

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General Ledger, Accounts Receivable, and Inventory Control*

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In the course of her field work, Turkle interviewed children, teenage video game fanatics, computer hobbyists and hackers, and members of the elite corps of artificial intelligence (AI) researchers. She interprets the way each group interacts with computers from a humanistic point of view. For the hackers and the game fanatics, the computer is an all-consuming passion that serves as a medium for creative expression or as the ultimate cerebral challenge. For AI researchers the computer may lead to breakthroughs such as a key that will unlock secrets of the mind.

For most people, however, the complex technology and rapidly increasing sophistication of computers are somewhat intimidating. In the same way that the railroad was feared as an intrusion into the nineteenth-century American "Garden of Eden," the computer has become a cultural symbol for our fear of the unknown, the mechanical, the unforgivingly logical. Turkle describes a potentially mechanistic direction in which our newfound intimacy with computers could take us: "... not only is the computer thought of in human mental terms. There is movement in the other direction as well. People are thinking of themselves in computational terms.... People are not just using computer jargon as a manner of speaking. Their language carries an implicit psychology that equates processes that take place in people to those that take place in machines. It suggests that we are information systems whose thought is carried in 'hardware,' that we have a buffer, a mental terrain that must be cleared and crossed before we can interact with other people, that for every problem there is a preprogrammed solution on which we can fall back 'by default,' and that emotional problems are errors that we can extirpate."

In the process of becoming more intimate with computers, some people will adopt the brain-as-microprocessor mentality, seeing themselves and the world in rigidly mechanistic terms. Others will anthropomorphize the machine, investing the computer with human-like feelings and personality. But most people will try to bridge the gap between those two approaches and come to terms with the increasing presence of the machine in the garden. As Turkle notes, "we cede to the computer the power of reason, but at the same time, in defense, our sense of identity becomes increasingly focused on the soul and the spirit in the human machine."

The people using computers, not the computers themselves, will determine whether the machine takes over the garden or becomes a tool that allows us more time to use our minds for thinking creatively and exploring further what it means to be human in the twenty-first century. Turkle quotes a 12-year-old programmer, who seems to have a good perspective on the issue: "When there are computers who are just as smart as people, the computers will do a lot of jobs, but there will still be things for people to do. They will run the restaurants, taste food, and be the ones who will love each other, have families...." □

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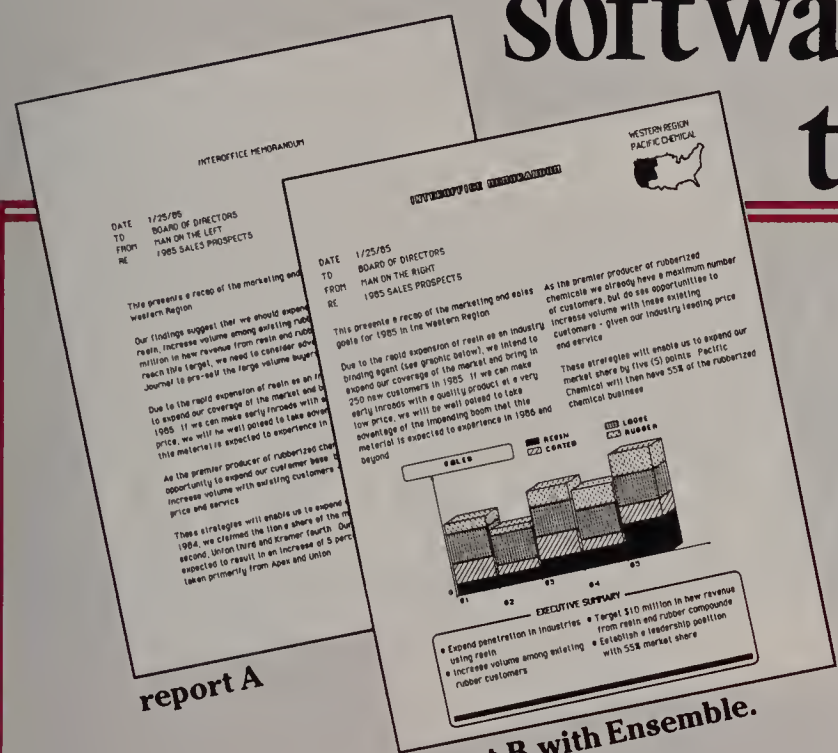

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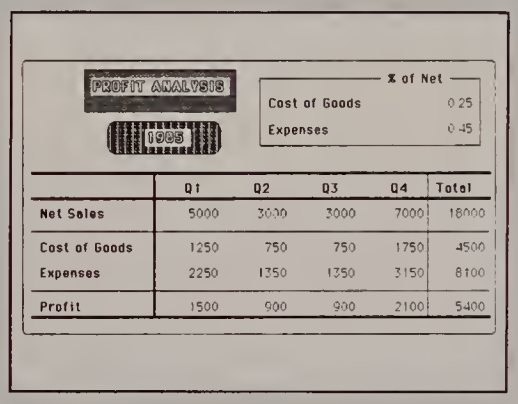

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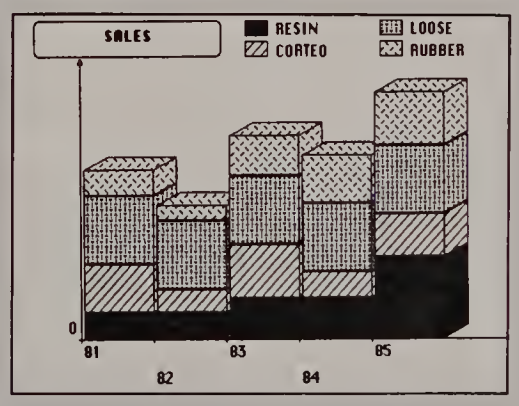

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Letters

Hold the Mayo

Why is it that the majority of computer magazines apparently think that their readers are idiots? As a Mac owner and charter subscriber to *Macworld,* I'm replaying a familiar scenario: develop a new interest, subscribe to a magazine that covers it, read it with great interest during the first few months, start to notice that many articles don't say much or are on an elementary level, begin to lose interest, and drop the subscription come renewal time.

You have a cosmetically nice magazine: good artwork and layout, great pictures, very professionally produced. But where's the beef? For example, in "Have You Hugged Your Mac Today?" (*Macworld,* December 1984), you devoted ten pages to how to clean my computer. The mind boggles.

Joel Varney
Mountain View, California

Pick of the Litter

I'm a charter subscriber to *Macworld.* In fact, as an executive of a PC software firm, I'm a subscriber to about 40 computer magazines, journals, and newsletters. Of all the printed matter I receive each month, your magazine is the only one I look forward to reading. Certainly I have a strong interest in the Mac, but I believe the source of my satisfaction with *Macworld* is its fresh, simple layout and excellent editorial content. Your coverage of the LaserWriter was right on target, not too technical but not wishy-washy. Keep up the good work.

George T. Thibault
Parisippany, New Jersey

Life Goes On

I was a wee bit disappointed in the lack of information on Bill Atkinson's Life program [*Macworld View, Macworld,* January 1985], but the item was meant as an introduction for people who are not acquainted with the game, so I can forgive you.

The series of articles in *Scientific American* was written by Martin Gardner, not John. The articles are reprinted with updates in his book *Wheels, Life and Other Mathematical Amusements* [W. H. Freeman & Co., 1983].

For more advanced players the major limitation of Life programs is their size of playing area. It doesn't take long for small patterns to encroach on the perimeter of the playing surface. Since the game is designed to be played on an infinite board, patterns generated may differ from "reality." It would be nice to have programs with size capabilities much larger than the typical screen.

One of my hopes for the Macintosh is that it may provide such a program. I don't know if Bill Atkinson's program is what I'm looking for, and I was hoping to get an address through which I could find out.

Hans Havermann
Weston, Ontario
Canada

Life is in the public domain, so try your local user group. Members of the MicroNet Apple User's Group can find the game in MAUG's Data Library 4 under LIFE.HCX, according to MAUG chief system operator Neil Shapiro. See "Shopping the Electronic Software Shelves" in this issue.—Ed.

But Can It Sell Popcorn?

Having just read "The Mac Goes to the Movies" [*Macworld,* March 1985], I have finally been motivated to write. I am an art director and have used my Mac extensively on two film productions.

On the movie for television *A Summer to Remember,* with James Farentino and Louise Fletcher, I did all my design work on the Mac. I was able to take drawings of large truck signs from the Imagewriter to a commercial sign painter, who reproduced them in color and to scale.

I also worked as art director on the feature film *Ghostwriter,* with Cloris Leachman and Dee Wallace. I was able to keep track of props, budget, and some set design with the help of my Macintosh. It even helped me send out thank-you letters when production wrapped up in December.

I do think that Mac owners will get a kick out of knowing that their little machine can really go when making movies.

Steven Karatzas
Sherwood, Oregon

The Tax Man Was Here

If you perform one of the calculations shown in "The Tax Man Cometh" (*Macworld,* March 1985), the tax man will come.

The formula table on page 109 tells us to type the formula **= MAX(0,R85C7-R56C7)** in cell R87C7. If you enter that formula, you are subtracting zero

(continues on page 36)

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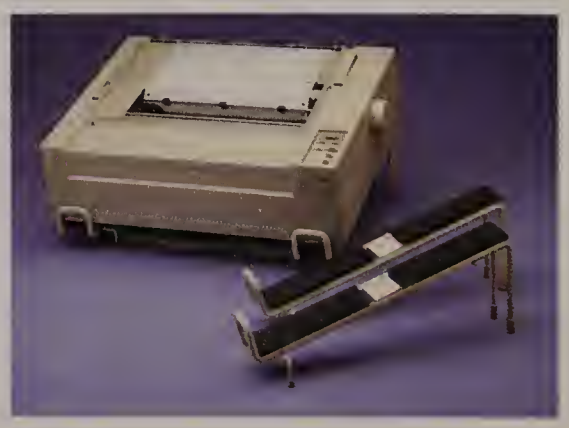

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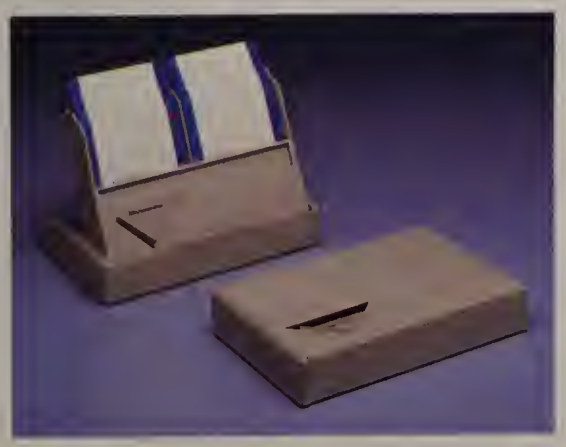

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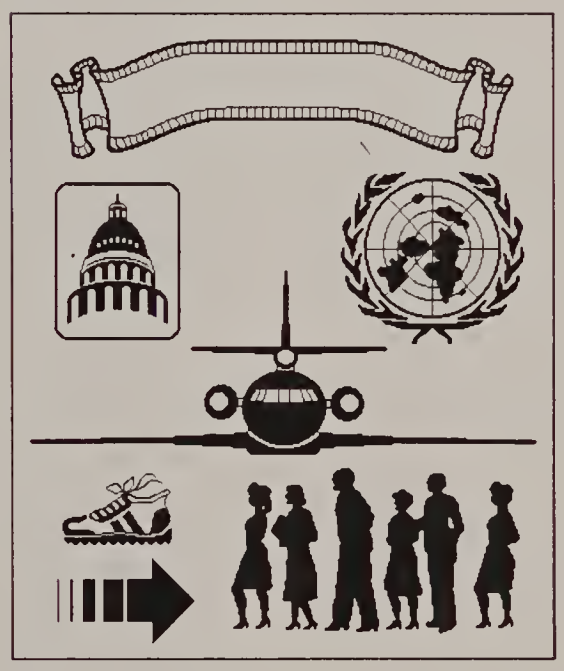

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RAM Disk Response

Macworld has received numerous letters in response to Danny Goodman's review of Assimilation's RAM disk program (see "The Invisible Disk," Macworld, *March 1985). Some of the lively discussion and useful information from the correspondence follows.*

Although the limitations Danny Goodman mentions on the use of a RAM disk for the Mac do exist, I have still found it a very useful tool. In a few situations a RAM disk comes in handy. When you copy files between disks, placing the System and Finder files on the RAM disk eliminates all those calls to insert the startup disk. A RAM disk also speeds up printing in standard or high quality because the image is saved to the RAM disk rather than a floppy. Finally, moving fonts in and out of several small font files is a breeze with the RAM disk but tedious on a floppy, which requires calling and quitting the Font Mover for each file. Of course, it would be nice to have the Lisa's megabyte of RAM to play with, but until then I shall continue to enjoy the 316K RAM disk.

Peter G. Hinman
Ann Arbor, Michigan

"The Invisible Disk" was right on target. *Mac Memory Disk* by Assimilation is an excellent and potentially useful piece of software, but the Macintosh System folder takes up so much room that the usefulness of the product is limited.

I suspect that many Macintosh owners, like me, want a fast method of mixing text and graphics. It would be ideal to have *MacWrite* and *MacPaint* on the same RAM disk. Switching between *MacWrite* and *MacPaint* and using the Scrapbook and the Clipboard should be greatly speeded up. It is possible to do this using the RAM disk, but barely so.

You can strip the operating system to 72K. To that add the Finder (45K), the desktop (7K), *MacWrite* (69K), *MacPaint* (60K), and a modest Scrapbook (20K), leaving about 40K free if you use the full 316K RAM disk option.

With 40K free it is possible to generate, mix, and transfer *Write* and *Paint* documents rapidly, if the principal working document is saved to an actual disk. When free space falls below about 20K, as it will if documents are not saved to an actual disk regularly, the frustrating "disk almost full" message appears. Nevertheless, with a little care and planning, it is possible to use a RAM disk to great advantage.

Ideally, Assimilation will increase RAM disk size to about 360K by permitting some of the buffer to be used. Many of the problems described in Goodman's review would be ameliorated with a little more RAM.

Joseph Casanova
Los Angeles, California

Goodman cautions against using the fastest configuration—one in which everything, including the document being edited, is on the RAM disk—warning that all will be lost if power is interrupted. However, there are times, such as when you view a document rather than modify it, when such caution is not necessary. More importantly, other applications, such as *MacTerminal,* work nicely from the RAM disk with no risk of data loss. I have never lost any data on a RAM disk due to power failure, but beware the bomb.

Goodman correctly points out that for optimum performance the RAM disk should be the startup disk. He states, mistakenly, that the only way to do this is to run an application on the RAM disk after running the *Mac Memory Disk* program. Pressing the Option and ⌘ keys while double-clicking the RAM disk's Finder icon establishes the RAM disk as the startup disk. Better still, use the "Create Temporary Disk automatically at startup" option in *Mac Memory Disk.* When a floppy disk is set up that way, the RAM disk becomes the startup disk and the floppy disk can immediately be rejected.

A RAM disk makes a perfect place to experiment with funny software, especially applications that modify the System file. Playing with experimental software (such as the Resource Editor) has more than once destroyed my System file. When this happens on a RAM disk, you haven't lost anything.

I agree that *Mac Memory Disk* does not significantly increase work productivity. It helps a little, though. Carefully used, it can help a lot in specific circumstances. It's certainly worth the 30 bucks.

William Arnett
San Jose, California

I was pleased to see that Danny Goodman didn't sugarcoat his opinions. After spending several days with the program, I reluctantly came to agree with the majority of his conclusions.

However, one legitimate use for the RAM disk makes it pay for itself. If you don't have an external drive, putting an application program on the RAM disk will leave room for a data disk in the internal drive, which eliminates disk swapping.

Robert Gelber
Sebastopol, California

One of the most delightful and often overlooked ancillary benefits of a RAM disk is the spirit of creative, even joyous exploration of software that its use engenders.

ResEdit, for example, is a fascinating tool for exploring Macintosh resources, but it spends a lot of time accessing the floppy disk. Using a RAM disk with *ResEdit* takes most of the pain out of waiting for things to happen. Of course you don't have to be a programmer or a hacker to appreciate how this increase in speed makes life that much more enjoyable. When you use the Font Mover to do a major update on the fonts in the System File, the "This may take as long as a minute" message flies by so quickly you can't even read it.

But *ResEdit* and other utilities occasionally crash. If they're on a RAM disk when they do, you can start over by rebooting the original file back on the RAM disk. Because it takes only 20 seconds to reconstruct a file, a RAM disk encourages a healthy sense of freedom and curiosity when you're exploring the Mac.

Finally, I take strong issue with Goodman's concluding remark that you shouldn't expect a RAM disk to "substantially improve your productivity." Mine does exactly that. I am currently working with an internal-drive 512K Mac and Apple's MDS assembly-language development system. All of the programs used in this development system sit on the RAM disk with my System, Finder, and Imagewriter files. Compilations that used to take 5 minutes now take less than 20 seconds.

When I really want speed, the RAM disk has enough room left over for my source and data files as well, although I have to back them up frequently. On the negative side, programs under development tend to crash a lot. When that happens, I have to reboot and wait 30 seconds or so until I'm back where I was.

I'd like to add that Assimilation's *Mac Memory Disk* is not the only RAM disk program available. I use *RAM Disk II,* $29.95 from Network Consulting, Discovery Park #110, 3700 Gilmore Way, Burnaby, British Columbia V5G 4M1 Canada.

Howard Katz
Burnaby, British Columbia
Canada

No question exists that a RAM disk adds versatility and speed in a number of special situations. Properly configured, a RAM disk helps transfer files among a number of disks without swapping disks, allows you to test software that might have bugs without danger of permanently destroying it, and speeds up programming. A RAM disk can also expedite the transfer of small amounts of information between relatively small application programs. You can also keep a large System folder in memory rather than on disk so that you can store additional programs or data on disk during a work session.

Undoubtedly, some people will discover other specialized chores that easily justify the price of a RAM disk. We encourage experimentation and would like to hear about your discoveries so that we can share them with our readers. But many Mac owners are not likely to find a RAM disk to be much of a day-to-day productivity enhancement. Furthermore, people experienced with RAM disks on other personal computers, such as the IBM PC, are likely to be disappointed with a RAM disk program on the Mac.

Keep in mind that a certain amount of time and effort is required to configure disks to take advantage of a RAM disk. And don't forget that a RAM disk may not leave enough room in memory to operate the growing number of programs that require a 512K Macintosh.

With these considerations in mind, we recommend a RAM disk for people who regularly perform specialized tasks and enjoy experimenting with software. —Adrian Mello

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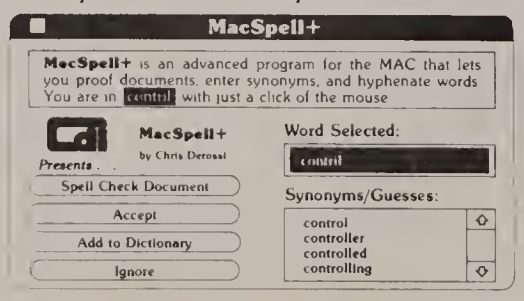

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(continued from page 29)

from your total payments. The correct formula is = **MAX (0,R85C7-R75C7)**. The error is in the row number.

I hate to ruin your anticipating a fat refund check, but it's easier to change the formula than to explain the error when the tax man knocketh on your door.

Otherwise, the article was a good reference on the uses of *Multiplan*.

Robert Edmiston
Whittier, California

Correction

On page 51 of the March issue we incorrectly stated that Videx's FunPak disk includes several Macintosh desk accessories. Although a number of early versions of FunPak, including the one sent to *Macworld*, did contain the desk accessories, they are not included in the current version. We apologize for any unfulfilled expectations.

Mail your letters to Letters, Macworld, *555 De Haro St., San Francisco, CA 94107, or send them electronically to CompuServe 70370,702 or The Source BCW440.* □

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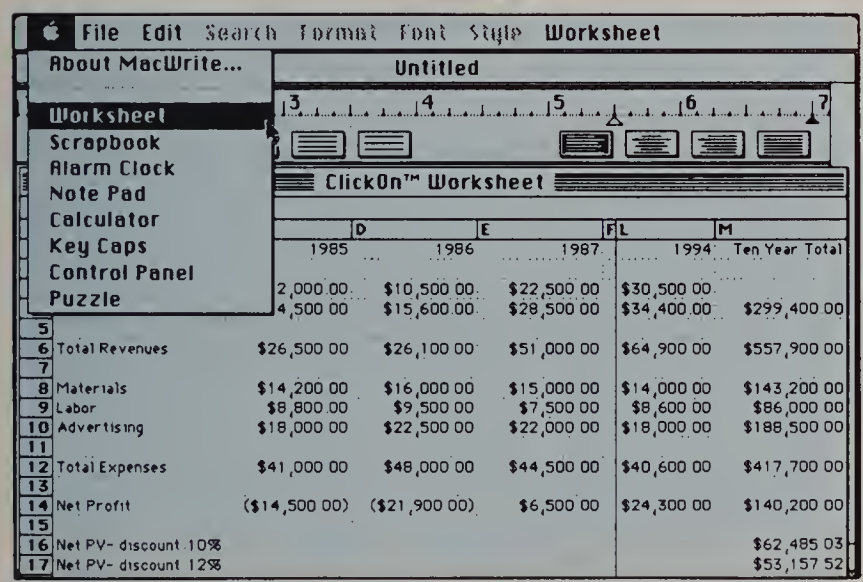

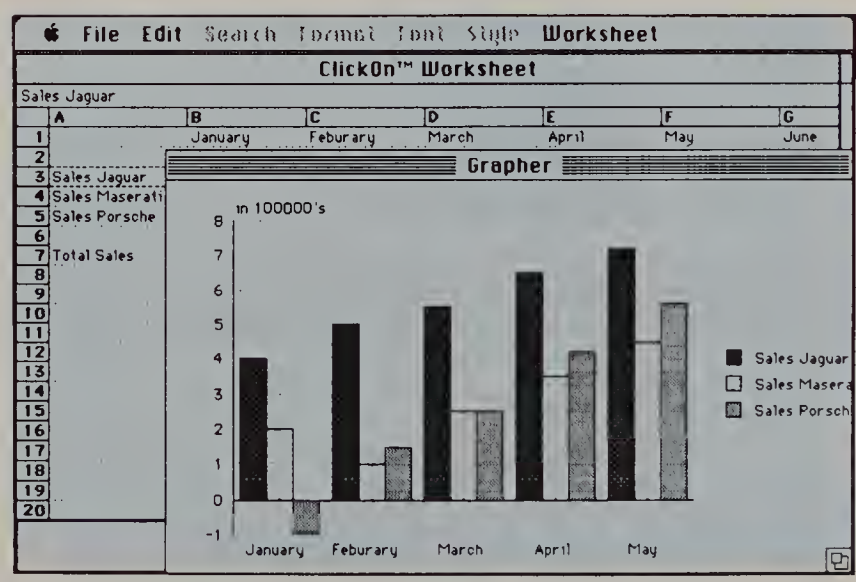

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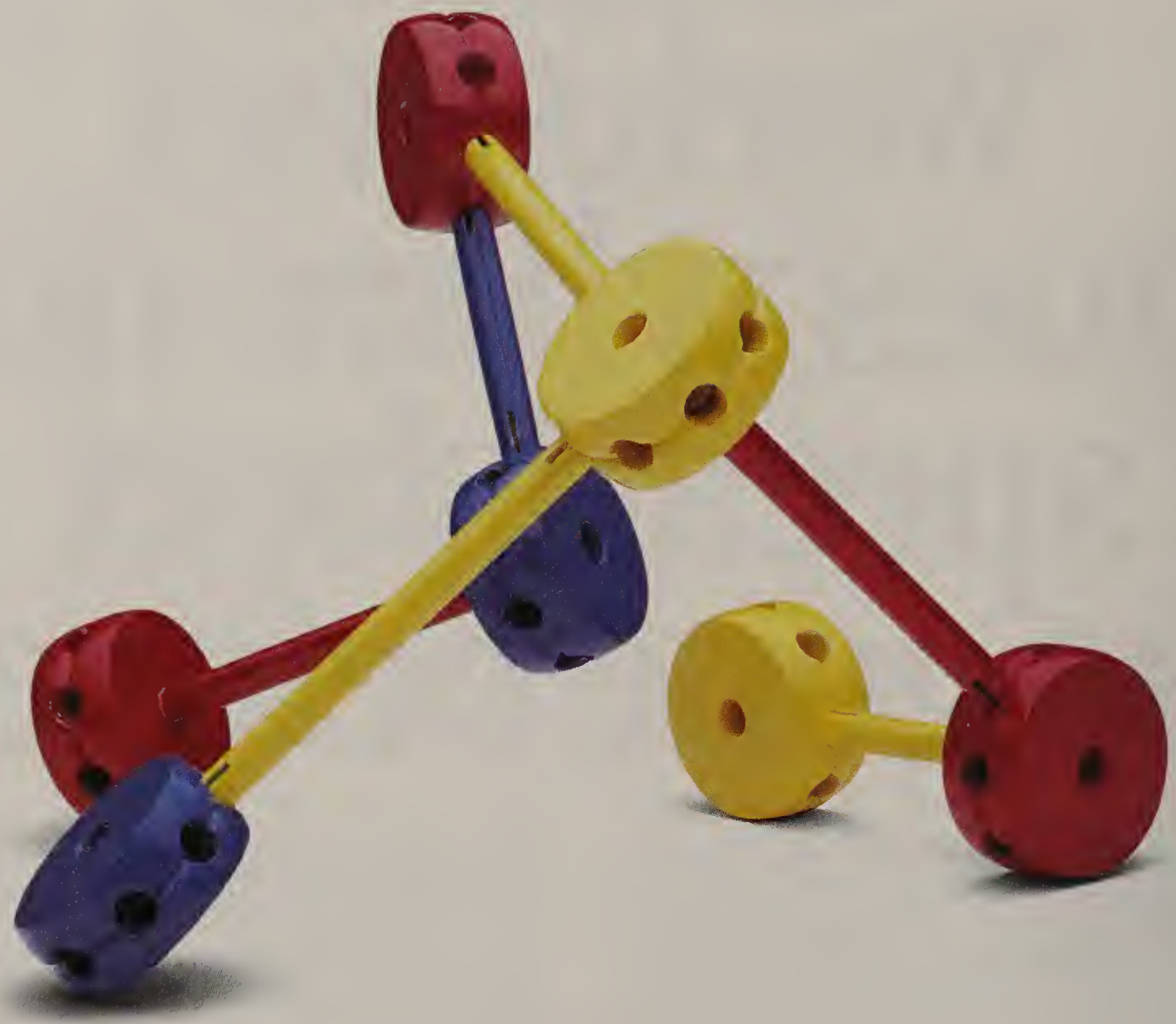

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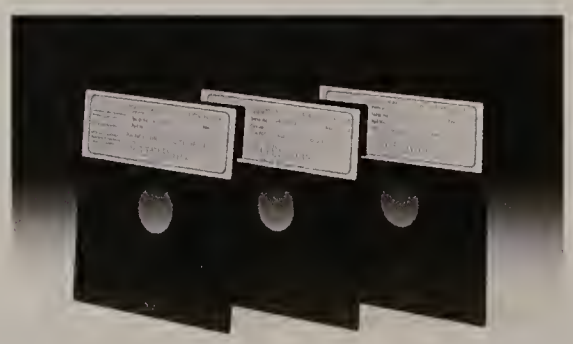

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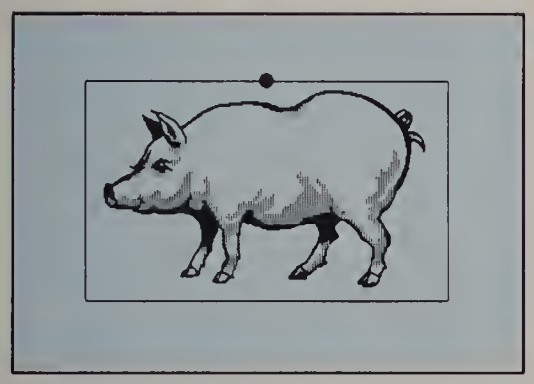
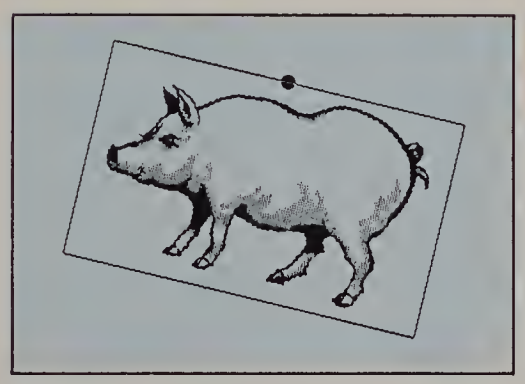
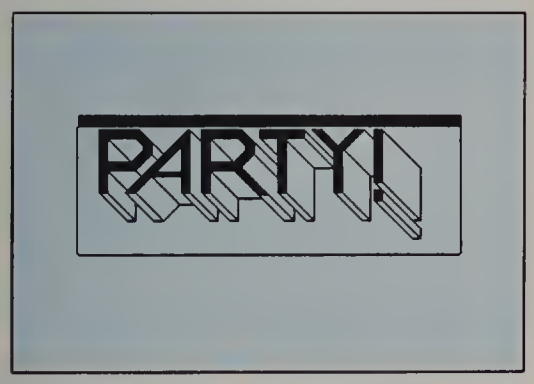


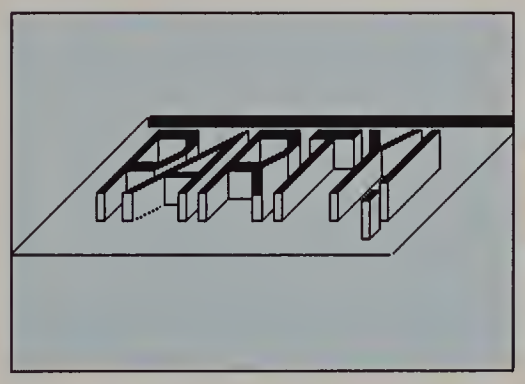
Pig from ClickArt Personal Graphics:



ROTATED



Canned headline from ClickArt Publications:



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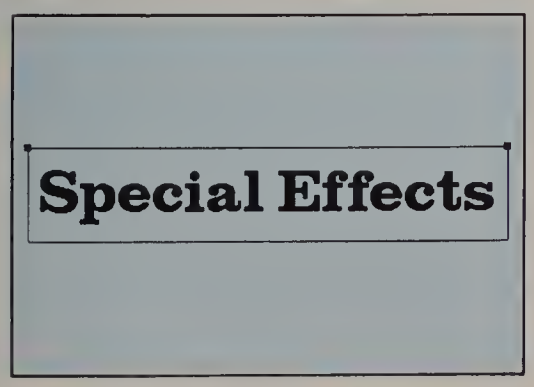

Boston 48 pt. font from ClickArt Letters:

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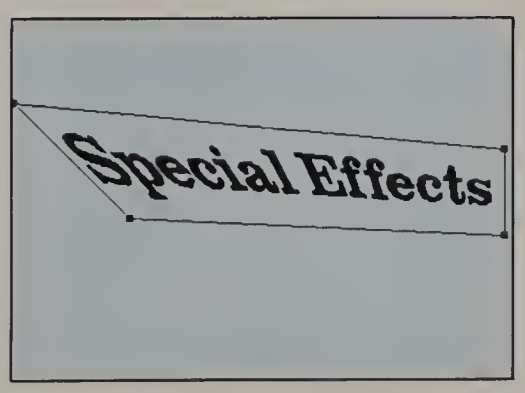
ClickArt Effects and ClickArt portfolios are $49.95 each. Each ClickArt portfolio comes with complete documentation and a tips manual outlining how to get the most from ClickArt and your Macintosh.



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THE BERNOULLI BOX™

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Macworld View

News and notes for the Macintosh community

Edited by Janet McCandless

Macworld View *reports on new products and developments in Macintosh technology. We cover items of interest to Mac users and comment on industry trends. We welcome contributions from readers and pay up to $50 for each item we use. Please include your name, address, and phone number with your contributions; send them to* Macworld View, *555 De Haro St., San Francisco, CA 94107.*

Dartmouth's Wired Campus

When Apple officially unveiled the AppleTalk networking scheme at its stockholders meeting in January, Dartmouth's beta-test version had already been operational for four months. By the end of 1984, 2600 location points had been wired and were running AppleTalk. The Macintoshes are connected via twisted pairs of cables to one of 80 minicomputers that serve as communications nodes. Curiously, the minicomputers are not designed for networking but are part of the Synclavier, a music synthesizer manufactured locally by New England Digital Corporation.

Dartmouth AppleTalk uses Apple's communications protocols but provides a different type of service to students and faculty. Instead of sharing peripherals and passing data, AppleTalk is a bridge to outside networks, such as Telenet, and to a larger campuswide network that links over ten hosts and 1500 terminals.

Macintosh users download the latest revisions of locally generated software from a library established on one of the college's Honeywell mainframes. The programs are conceived by faculty but developed by professional programmers to ensure that Macintosh features are fully implemented. Among the programs developed at the college are Venn, a program that uses Venn diagrams to solve syllogisms; Socstat, a program to compute sociological statistics; Appletones, a music-building program for introductory music classes; Mozart, a minuet writer; and Drill, a language tutorial for Spanish, Greek, German, and English.—*Lee Michaelides*

Prepackaged Programming

MACAPP, a program library currently in use at Apple, is designed to make it easier for software developers to write applications for the Macintosh. The program library is used with object-oriented versions of Pascal, C, LISP, and assembly language. An object-oriented language defines several lines of code as a discrete unit. Each unit of code, or *object,* handles a certain job common to all Macintosh applications, such as opening and saving files, printing documents, and creating windows. According to Dan Cochran, language and tool programming products manager of Apple Computer, *MACAPP* is expected to shorten program development time and

Apple Computer's Dan Cochran

to encourage programmers to adhere to Macintosh user interface standards. Other object-oriented languages include Object Pascal to be released by Apple, Objective C by Productivity Products, Neon (similar to FORTH) by Kriya Systems, and ExperLisp from Expertelligence.

MacExpress by ALSoft is a program similar to *MACAPP* that uses standard rather than object-oriented versions of programming languages. The program assists developers in implementing a complete and consistent Mac user interface. The program library handles scrolling; manages the display and selection of menu bar items; and creates, subdivides, and resizes windows. The company also offers a separate program module for printing. For more information contact ALSoft, P.O. Box 927, Spring, TX 77383-0927.

MacTable Assembly Instructions

If you can drill a hole, drive a screw, and spare 20 minutes at home, then you can build a great MacTable for between $15 and $45, depending on the wood you select. The MacTable consists of two side panels, three shelves, and a sway brace. When you are seated at the table, the top and bottom shelves project away from you, and the middle shelf projects toward you. Your Macintosh, external disk drive, and printer sit on the top shelf, the keyboard and the mouse sit on the middle shelf, and your paper or reference manuals are stored on the bottom shelf.

To build a MacTable, begin with a visit to your local hardware store and purchase four 36- by 12-inch boards, one 36- by 10-inch board, one 36- by 8-inch board, and 24 number 6 by 2-inch drywall screws. Before you start, make sure that you have the boards, the screws, a drill, a small drill bit, a ruler, and a pencil.

Select two 36- by 12-inch boards to be the side panels. Decide which end of each panel is up and which 36-inch edge is front. Draw three parallel lines on each panel 3½ inches, 9 inches, and 16 inches from the top. Mark drill holes on the first line for the top shelf; since the shelf projects backward, mark off ½ inch, 3 inches, and 5½ inches from the back edge of each side panel. On the second line mark drill holes ½ inch, 3 inches, and 5½ inches from the front edge, since the middle shelf projects forward. On the third line mark drill holes ½ inch, 2½ inches, and 4½ inches from the back edge. From the bottom end draw a 16-inch line up the middle of each panel. Mark drill holes 9, 12, and 15 inches from the bottom for the sway brace.

You're ready to assemble the table. Drill the holes that you have marked on each side panel. You also need to drill holes in the shelves and the sway brace. Use the two remaining 36- by 12-inch boards as the top and middle shelves, the 36- by 10-inch board as the bottom shelf, and the 36- by 8-inch board as the sway brace. Begin with the top shelf, making sure that it extends 5½ inches beyond the side panels' back edges. Using the holes drilled in the side panel as a guide, drill holes ½-inch deep into the edge of the top shelf. Drive a screw through each hole in the side panel and into the edge of the shelf. Do the same to attach the other end of the top shelf. Repeat the procedure to secure the middle and bottom shelves and the sway brace. Make sure that the middle shelf juts 5½ inches forward and the bottom shelf 5½ inches back. Attach the sway brace so that its top edge is 16 inches from the bottom.

That's all there is to it. You have a beautiful, inexpensive MacTable. Although I built my table in 20 minutes without any help, you might find it easier with a friend or a family member.—*Richard F. Heller*

Don't Touch That Dial

CompuServe and Jameson Broadcasting are sponsoring a computer series for commercial radio. Each 5-minute program is in magazine format with 90-second segments. The show includes interviews, software reviews, and news and information. Listeners who subscribe to CompuServe can direct questions through the bulletin board, Online Computer Connection Forum. Mac owners can also download information that supplements that provided in the broadcast. For further information on airing times, contact the Jameson Broadcasting production office in Columbus, Ohio, at 614/476-4424.

Apple Macintosh Sets Sail

In October a yacht named the Apple Macintosh Challenge will compete in the Whitbread Round-the-World race sponsored by the Royal Naval Association in London. The yacht, launched in December 1984, broke the world record in the South Atlantic race to Uruguay and won the overall championship in the Rothmans Week Maxi-Challenge series at Cape Town, South Africa.

Bill Schjelderup, Apple international marketing manager, says the choice of name for the yacht was a natural one. "Not only is the Mac used on board the yacht, but the craft, like the Mac, represents state-of-the-art design and technology. No expenses were spared to make it a worldwide winner."

On board the yacht an interlinked instrumentation system collects and displays information on 178 variables, including wind direction and air densities, rudder angle and sail combinations, and boat speed. A 512K Mac connected to a 10-megabyte hard disk drive is used to analyze the data and assist the skipper, Peter Kuttel, in evaluating the ship's performance and making tactical decisions.

During the South Atlantic race, the Mac had a chance to test its sea legs. Ludde Ingval, the ship's project manager, inserted disks and ran applications as the ship hit the trough of waves that struck the hull at 10 g's. Before the race the Mac was used for project management, correspondence, and information storage.

Berthed in Cape Town, South Africa, the Apple Macintosh Challenge is ready to sail away to its next open-sea race. Skipper Peter Kuttel (inset, seated) and project manager Ludde Ingval use an on-board Mac to monitor and evaluate up to 178 variables.

Answer to Slow Switches

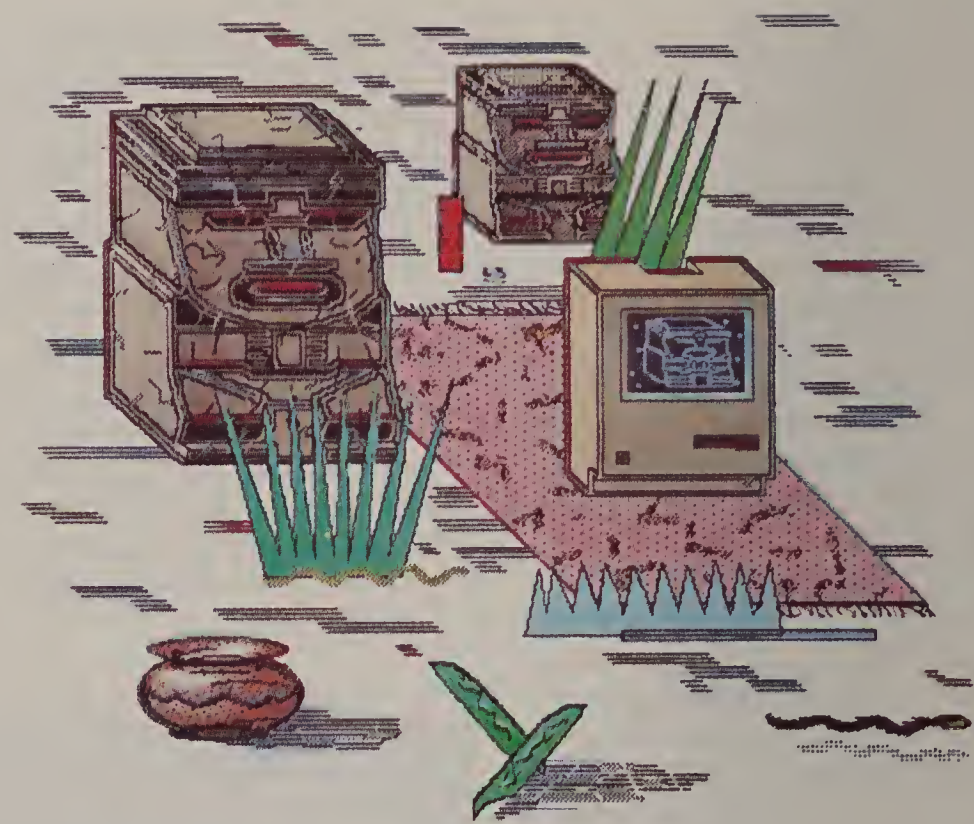
Many Macintosh owners complain that it's slow switching between applications on the Mac. According to Andy Hertzfeld, one of the designers of the Macintosh, "Part of the dream of Mac is that every program is able to communicate and share information so the whole of the program is more than the sum of its parts." People find it tedious to go through the Finder to exchange information between Mac applications.

While Hertzfeld was finishing work on ThunderScan, an optical scanning digitizer for the Mac, he saw John Markoff of *Byte* magazine run a program on the IBM PC that allowed people to flip screens between applications. "I took a week off to demonstrate the feasibility of switching on the Mac. I patched the operating system and was able to switch between *MacPaint, MacDraw,* and *MacWrite.*" A friend suggested that he animate the switching process. He incorporated his friend's suggestion in the Switcher, a program that allows you to keep up to four applications "alive" at one time on a 512K Mac.

When you load the Switcher, you divide the memory on a 512K Mac into four areas, such as four 128K segments. You can set up the Switcher so that clicking its icon at the beginning of a work session loads the applications you need into memory. You use the mouse or the keyboard to move from one application to another. It's faster than turning the page of a book.

The license plates on Hertzfeld's car say "MAC WIZ." But he's more than a programming wizard; he's the Mac owner's best friend. "My goal in writing a program is to see a user's jaw drop in awe. I want to wow people. People who have been switching from *Paint* to *Write* the old way are amazed." Apple reports that the Switcher will reside on a future release of the System disk.

On leave from Apple and always out to amaze, Andy Hertzfeld developed the Switcher to whiz from one Mac application to another.



Technology Comes Full Circle

It is well known that the Macintosh and Lisa user interface concepts evolved from work in the mid-1970s at Xerox Corporation's Palo Alto Research Center. Now Xerox will be selling the Apple computers that came out of that research. Over the next three years, Xerox plans to market Apple Computer products in Central and South America. Xerox will distribute Apple products through authorized Apple dealers and Xerox's sales offices and service centers.

Xerox has been in Latin America for over 20 years. The company's image of stability, combined with its business and government contacts and its reputation for maintaining equipment, increases the likelihood of brisk Xerox sales in Central and South America. According to Javier Erqueta, sales and marketing manager for Latin America at Apple, the Apple II will outsell the Mac in Latin America in 1985 due to pricing and software availability. Xerox will sell and service Apple computers in Argentina, Belize, Bolivia, Chile, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Nicaragua, Panama, Paraguay, Peru, Suriname, Uruguay, and Venezuela.

In the Public Domain

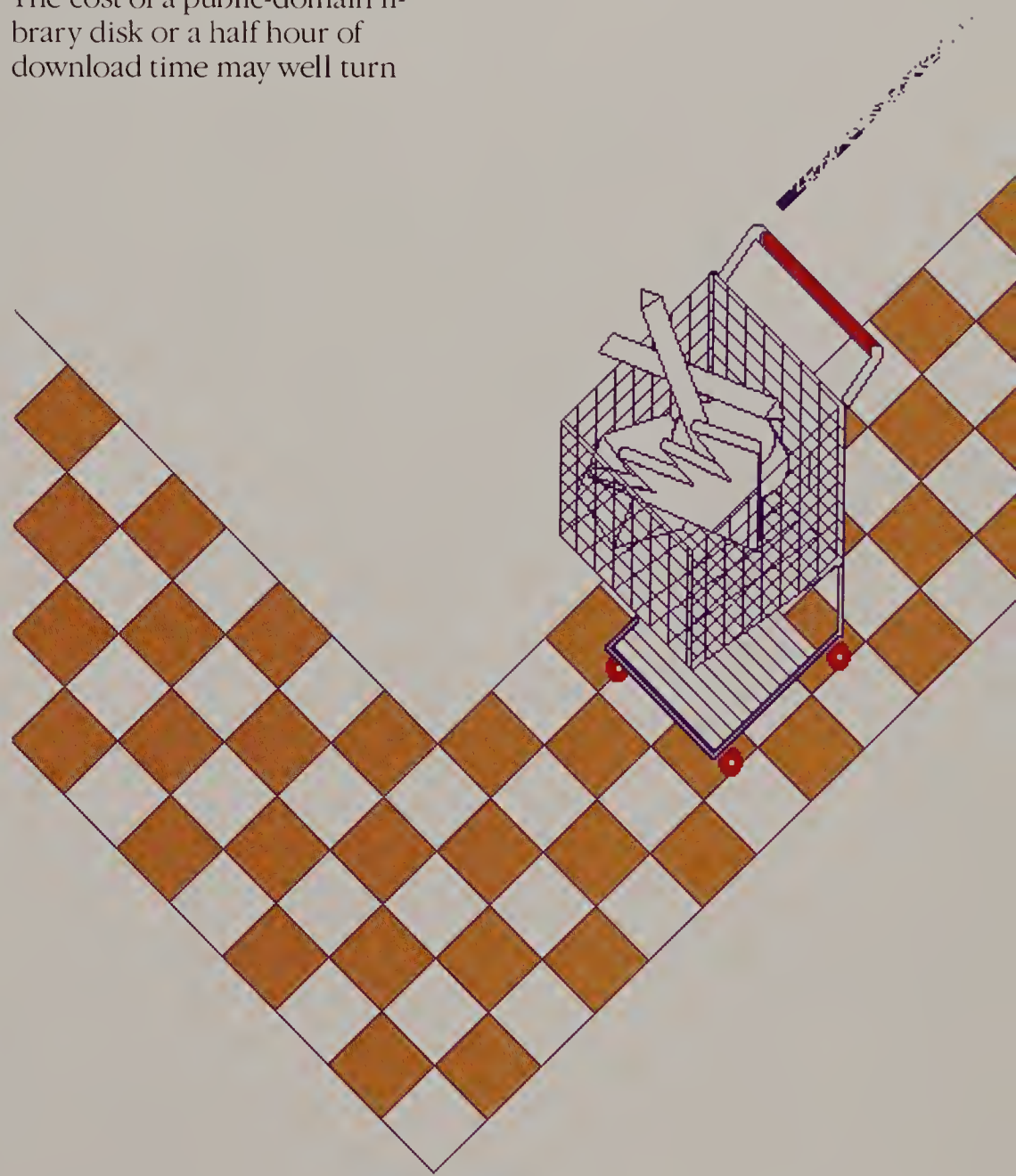
Many consumers believe that if you don't pay for something it is as a rule worthless. Public-domain software, however, represents an exception to the rule. Hundreds of public-domain programs are available from Macintosh user group program libraries, local bulletin boards, MAUG (MicroNet Apple User's Group), and other sources. The programs can help everyone from graphic artists and programmers to musicians and game enthusiasts. This report is a small collection of hints to help those who plan to mine the riches of public-domain software.

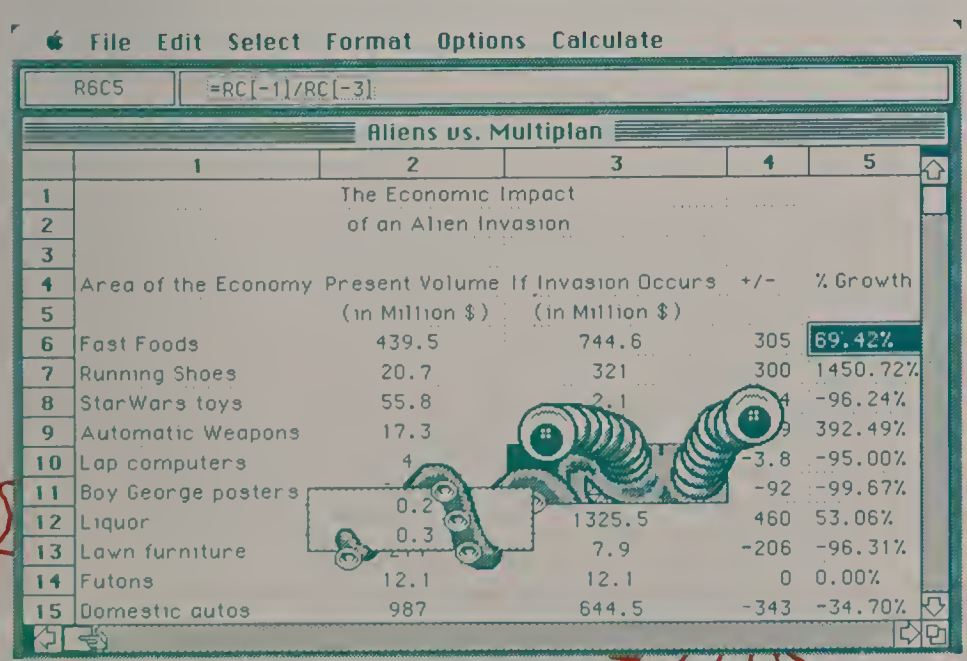
Shop Around. This advice may sound peculiar for software that is supposed to be free, but the truth is that most public-domain software involves some form of financial outlay—the cost of disks, disk mailing packages, and postage or a connect fee charged by the phone company or a commercial database. Public-domain programs are often available from more than one source, such as user groups, bulletin boards, or information services like CompuServe. If the program you want is short, it is probably cheapest and most convenient to download it from an information service or a bulletin board (see "Shopping the Electronic Software Shelves" in this issue). If the program is long or you want a collection of programs, acquiring software from a user group may save you money.

Test-drive public domain software. Public-domain programs often have bugs. Some bugs present themselves immediately. Others prefer to lie in wait until you use the program on important files or you must complete your work on schedule. You should thoroughly experiment with a new piece of public-domain software before relying on it. If you plan to use the public-domain program with other applications, conduct your experiments with backup copies of the applications.

A few of the most fascinating public-domain programs are bug-infested. Some of the bugs are benign and simply disable a given feature. Other bugs, however, can cause the program to crash. If you step on a bug, take note of the circumstances and then try to find a solution. Write down the procedure for future reference. If you fail to circumvent the problem, ask your local user group or leave a query on CompuServe.

Be adventurous. If there are public-domain alternatives to a piece of software you're thinking about buying, try out the public-domain programs first. The cost of a public-domain library disk or a half hour of download time may well turn out to save you money. On the other hand, if your test drive of public-domain software leads you up a dead-end road, remember: you're only out a few dollars, and you won't nag yourself about whether you could have done the job less expensively.—*Robert C. Eckhardt* □





A cartoon from a series called Screen Dumps by Jay Kinney. Kinney is the illustrator of Inside MacPaint *by Jeffrey S. Young (Microsoft Press, 1985).*

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Multi-user, with record locking	NO	NO	NO	NO	NO	YES
User Defined:						
–Pulldown Menus	NO	NO	NO	NO	NO	YES
–On Screen Button Commands	NO	NO	NO	YES	NO	YES
–Messages/Command Sequences	NO	NO	NO	YES	NO	YES
Password Security	NO	NO	YES	NO	NO	YES
Open/Available Files	1/1	1/1	1/1	14/150	"Unlimited"*	12/24
Fields per Record	3,100	1,024	120#	350	"Unlimited"*	1,440#
Numeric/Date Calc's	Report only/No	YES/NO	YES/YES	YES/YES	YES/YES	YES/YES
Mail Merge	NO	NO	YES	YES	YES	YES

†Hierarchical file links can make handling of data faster and simpler.
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Note: Information for this chart was obtained directly from the companies involved.

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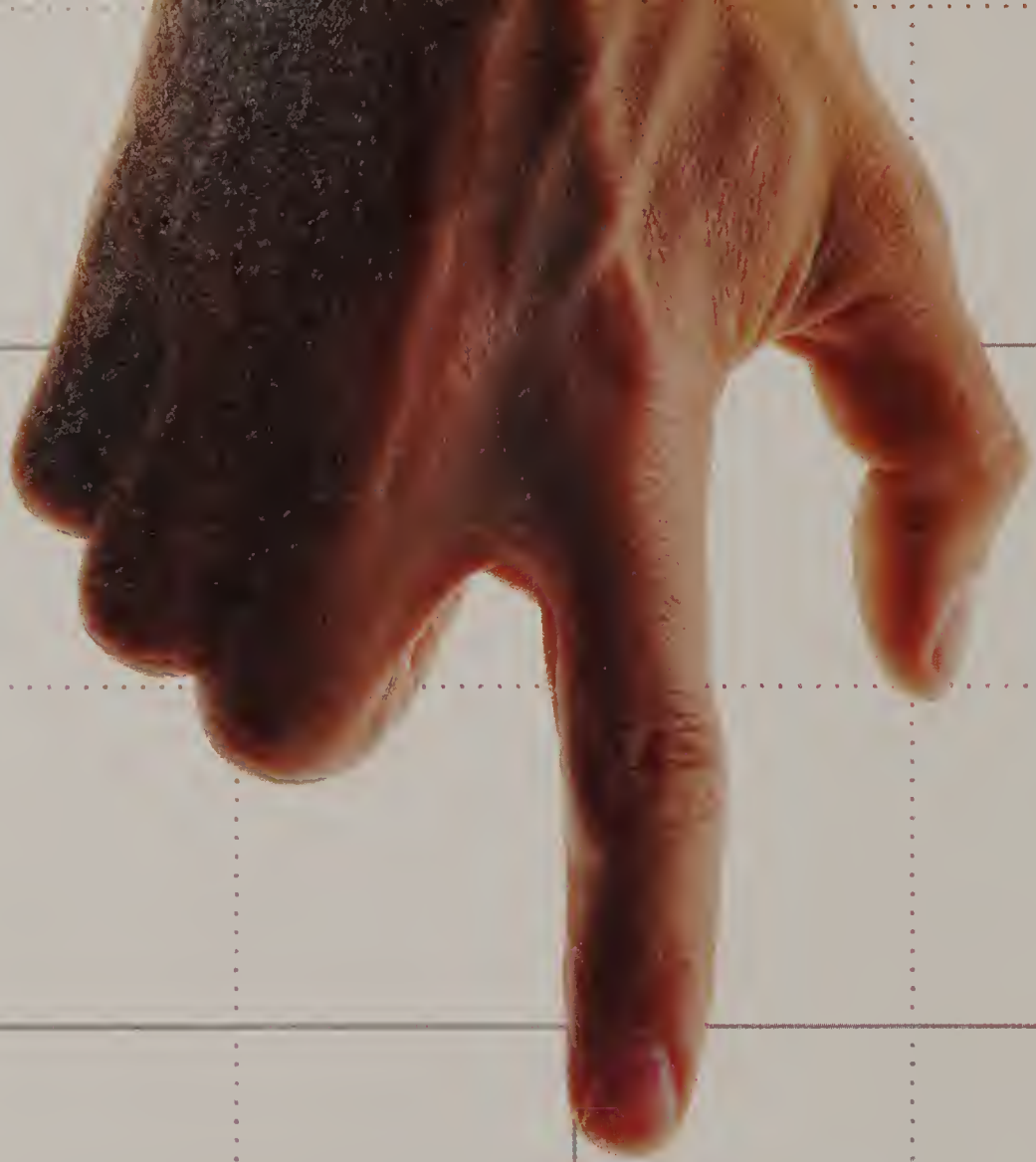
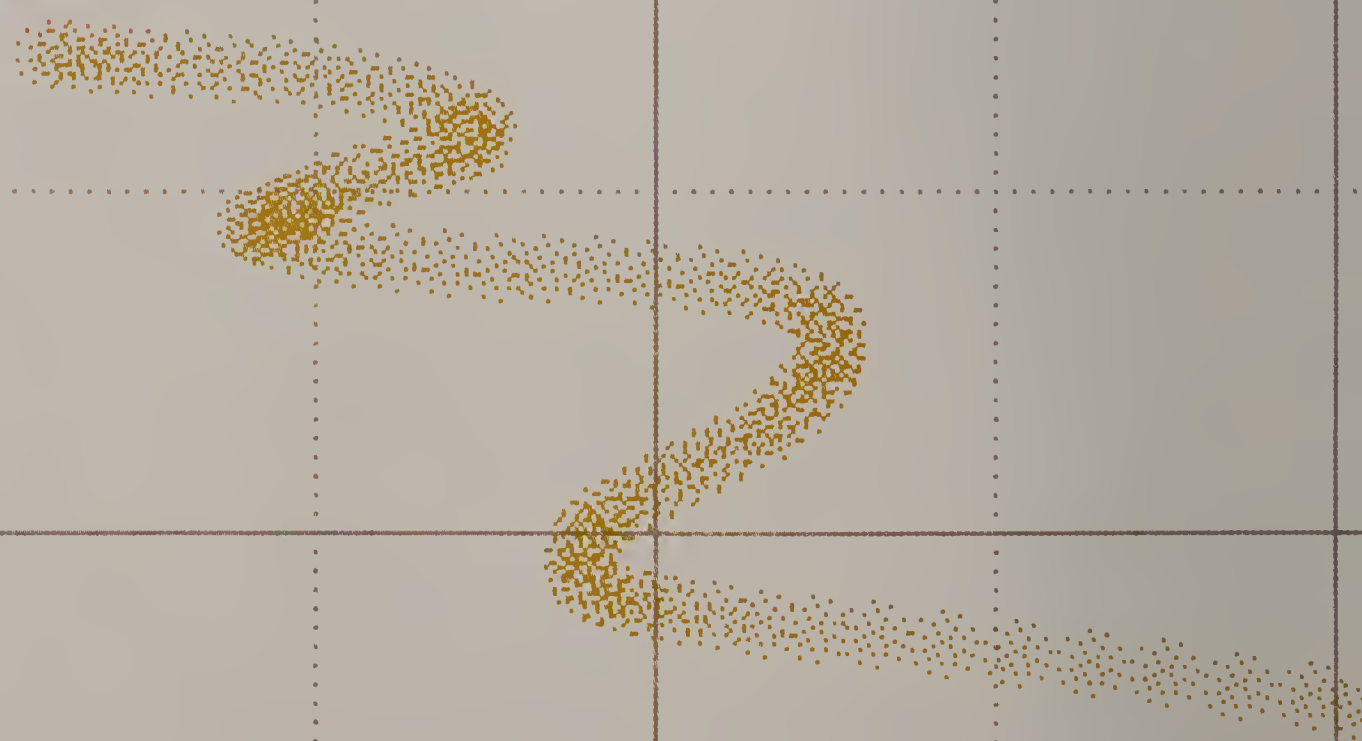


Unleash Your Fingertip



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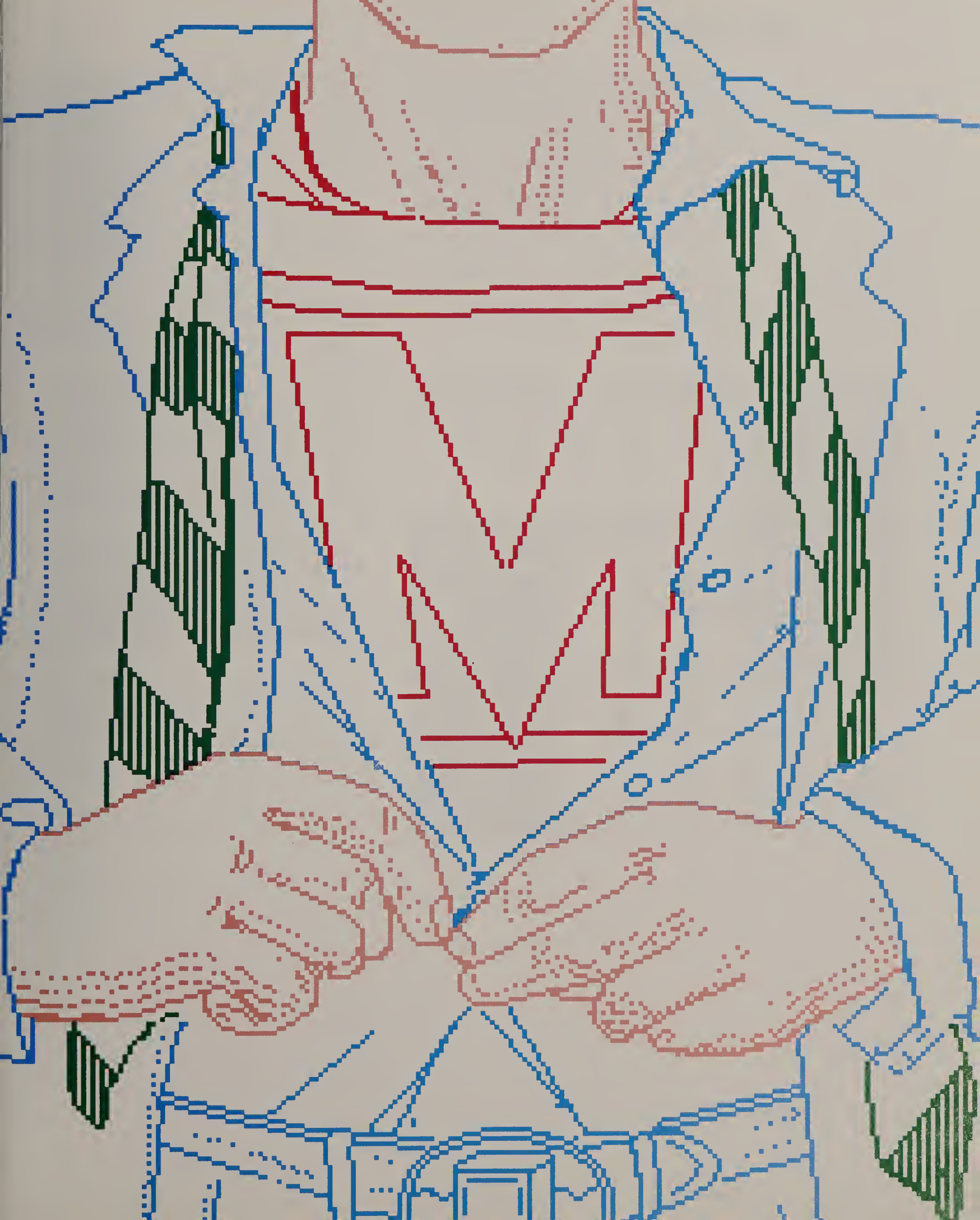
SuperMac to the Rescue

Danny Goodman

It was a peaceful day in Mactropolis. The multitude of knowledge workers were happily preoccupied with their tasks. At the pond in Jobs Park, the FatBits were byting. Then suddenly the archvillain of all Mactropolitans broke out of his high-security cell in the System file and made his way into the pixel light—the evil Professor Alert. He raved madly as he broadcast his ominous message to all: "Disk almost full; you can't do that operation." Mactropolis was gripped in a panic.



But then, high up in the sky, the faint whistling rush of Mactropolis's guardian was heard homing in on the city's nemesis. The frenzied masses in the streets came to a halt as they began squinting and searching the clouds for a glimpse of their hero.

"There he is," someone shouted. "It's not a bird, it's not a plane . . . it's SuperMac!"

Armed with only his nimble mind and his magic mouse, SuperMac rounded up Professor Alert in a flash and banished the recidivist reprobate to outer space.

Afterward, SuperMac flew me to his hidden Fortress of Silicon, where he revealed secret techniques for keeping disks and icons in order and how to avoid being confounded by villains like Professor Alert. Let me share SuperMac's secrets with you.

The Iconoclasm

The forces of chaos often achieve infamy by confusing the otherwise innocent and System-abiding elements of Mactropolitan society. When seemingly benign icons are massed in large groups, things can turn ugly.

Figure 1
To select many documents at once, choose the listing method that is most convenient from the View menu. Select the appropriate documents and return to the view of the icons, where the files remain selected. Here selected files are copied to a backup disk in one move.

Locating a particular document among many icons in a disk window is like finding a single tile in a black-and-white mosaic. For one large project, I had three disks that contained over 130 *MacPaint* and *MacWrite* files. I needed to copy a group of related documents from one disk to another, but I couldn't find the files in the huge window. Just when I thought I was doomed to an endless search across the disk window's monotonous landscape, SuperMac came to my rescue. He taught me a step-by-step procedure that can help anyone find, copy, and delete specific files within a group by changing desktop views.

- Choose Name on the View menu so that files appear in alphabetical order.
- Select files listed next to each other by clicking and dragging. Select individual files by shift-clicking each one as you locate it.
- Choose Icon on the View menu. The files remain selected but are now viewed as icons. At press time sources within Apple told me that programmers are investigating a revised Finder that might allow people to drag as well as select files listed by name, date, size, and kind.
- Drag the selected icons to their destination, such as a second disk or the trash. You can drag all selected icons in one operation even if they're not all shown in the window.

You can also use a variation of this technique as a shortcut for making backup copies of documents:

- Choose Date on the View menu.
- Select the documents you've updated that day.
- Change the disk window view back to Icon.
- Drag the selected files to a backup disk (see Figure 1).

The Long-Named Villain

One of SuperMac's strangest enemies could be vanquished only by tricking him into reciting his initials backward. You're not likely to encounter such a scoundrel when using the Macintosh, but you may face a more run-of-the-mill malefactor who tries to confuse you with his lengthy name.

The freedom the Macintosh offers by allowing document names to have up to 63 characters sometimes creates near-riot conditions in the disk window. When names have more than 44 characters each, they begin to overlap from one icon to the next. The name of the icon most recently selected rests on top. To make long document names readable, SuperMac suggests that you stagger columns of documents and folder icons by following these guidelines (see Figure 2):

- Size the disk window so that it almost fills the screen, leaving space on the desktop for one or two columns of icons on the right. The Finder automatically places disk icons in a column next to the right edge of the screen. For quick access to programs, you can also place program icons from the disk window on the desktop in another column next to the column for disk icons.

• Align the icons remaining in the disk window with the Clean Up command on the Special menu. The window shows icons in five columns.

• Select the icons in the second and fourth columns by drawing a marquee around one column and holding down the Shift key while drawing another marquee around the other column.

• Drag the selected icons so that the names are immediately below their original position. When you release the mouse button, the documents and folder icons are staggered so that names don't overlap.

If you have icons not shown in the window, scroll in the appropriate directions and reposition every other column in the same manner, until all the icons are rearranged. Once you set up the disk window this way, avoid using the Clean Up command, which aligns the icons in straight rows and columns.

The Missing Icon

In Mactropolis young icons have been known to wander down an alley and never reappear. The bane of incorrigible felons, SuperMac is the guardian of the city's smallest, weakest, and otherwise most often overlooked citizens. One day he was given a disk whose window showed no document icons yet had active scroll bars, indicating that somewhere one or more icons were lost. Indeed, a look through one of the other methods on the View menu revealed what the document was. But scroll as he might, SuperMac couldn't find the icon. Perhaps maliciously, the icon had been placed at a great distance from the upper-left corner of the window, creating an enormous, almost empty window that was time-consuming to scroll through.

According to SuperMac, you can always find an icon by using the Clean Up command and the scroll bars.

• Adjust the scroll bars so that the upper-left corner of the window is in view by placing the vertical and horizontal scroll boxes at the top and the extreme left, respectively.

• Issue the Clean Up command.

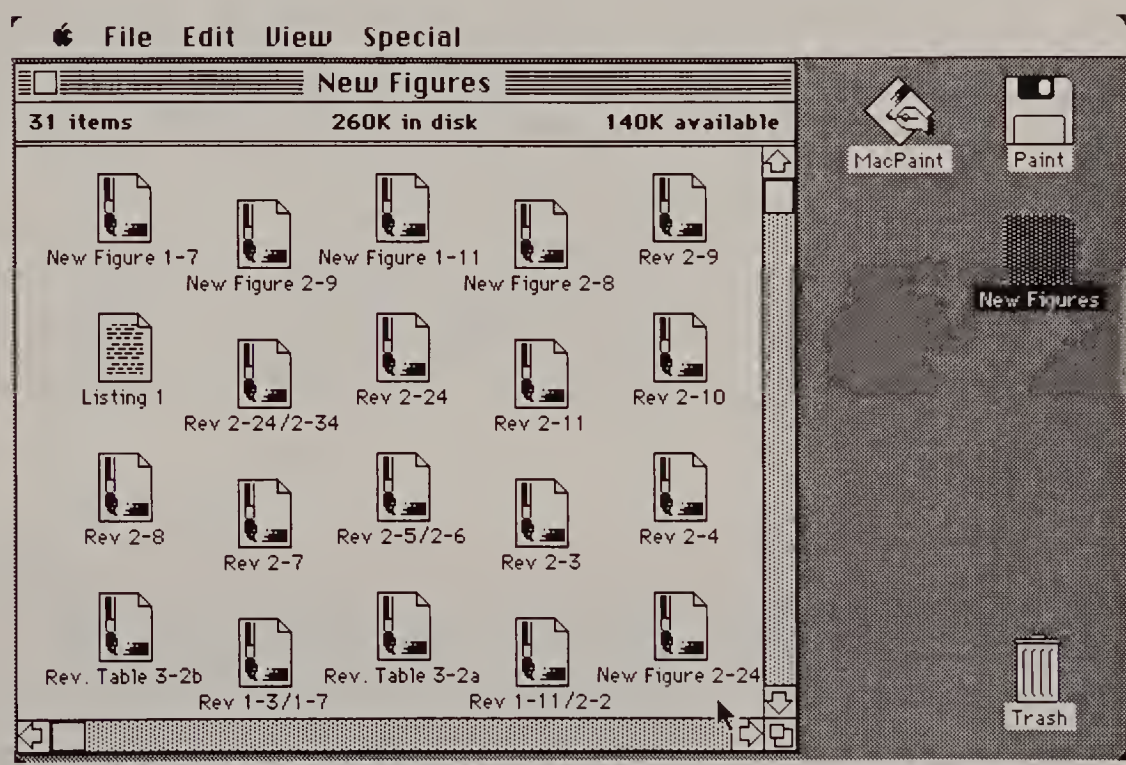
Any icons are repositioned to fill the empty space in the window. If all the icons on the disk fit in the window's current size, the scroll bars deactivate.

Cutting the Clipboard's Tail

SuperMac has often come within a hair's breadth of losing the apparently inevitable encounters with the maniacal Professor Alert. But by calling upon hidden resources, SuperMac has been able to eke out a last measure of disk space and thus prevail. *MacWrite* is an especially fertile breeding ground for "disk almost full" messages. With early versions of *MacWrite*, a document quickly reaches the limit of the 128K Mac's memory—about 10 to 12 pages of double-spaced text. The disk-based version announced with the 512K Macintosh (see "The Macintosh Deluxe," *Macworld*, November 1984) lets you create documents whose size is limited only by available disk space. But *MacWrite* uses the program disk to store the temporary file while you write or edit. If you have a System file full of fonts and a document or two stored on the disk, you may run into full-disk problems when you are working on long documents.

While you create a document, keep an eye on how much disk space remains available by selecting About MacWrite on the Apple menu periodically (see Figure 3). However, keeping track of remaining disk space is difficult when you reorganize or edit a docu-

Figure 2
To offset long document and folder titles for readability, drag the icons in alternating columns down just enough for the names to be below their original locations. When icons are staggered, even long document names don't overlap.



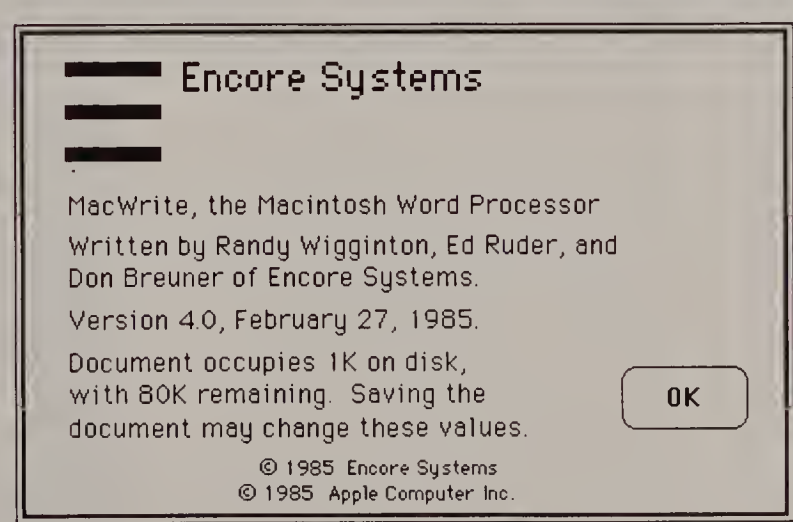


Figure 3
Selecting About MacWrite on the Apple menu brings up a box that details, among other information, the size of the current document and the amount of disk space still available. If the document is saved on the MacWrite *program disk, the document occupies twice its own size during editing: once for the original document and once more for the temporary file that* MacWrite *creates while you edit.*

ment. Adding a couple of paragraphs or moving a large section from one document to another often results in a "disk almost full" message no matter how vigilant you are.

By clearing the Clipboard you can usually reclaim a small amount of disk space (or additional memory on versions 2.2 and earlier of *MacWrite*). If you recently cut or copied a substantial portion of text, it is stored in the Clipboard file. To clear the Clipboard, select one character and cut or copy it. A large Clipboard file is immediately reduced to the smallest file possible. You now have liberated a few extra kilobytes, allowing you to add a paragraph or put final touches on a document.

Assuming that you no longer need the Clipboard's contents, clearing it before quitting *MacWrite* can help you avoid another problem. Sometimes you have to swap disks when you insert another program disk in the same drive as the program you used previously. This swap request occurs even if you have a second disk drive because the Mac's operating system is designed to automatically transfer the contents of the Clipboard to the new program disk. Even the transfer of a few lines of text on the Clipboard requires a disk swap. When you reduce the contents of the Clipboard to a single character, the Mac's memory handles the transfer without a disk swap.

In a Single Bound

"Faster than a speeding bullet. More powerful than a locomotive. Able to select entire documents in a single bound!" SuperMac showed me how to accomplish the last of these great feats. When you want to select an entire document in *MacWrite*—to change the font size or style, for example—you usually have to scroll through the text line by line. There's a quicker way to select an entire document.

- Plant the text insertion pointer at the beginning of the text.
- Drag the scroll box to the bottom of the scroll bar.
- Place the text pointer anywhere past the end of the text and shift-click. This method automatically selects the entire body of text.

SuperMac has shown me that with these techniques and a little courage you can frequently keep Professor Alert and other malefactors at bay. SuperMac remains vigilant—champion of the knowledge workers, protector of hassle-free computing in the Mactropolis calm. □

■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ *Danny Goodman is a Contributing Editor of* Macworld.

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Circle 83 on reader service card

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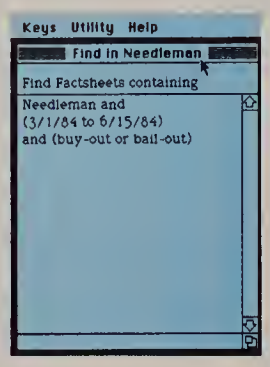

You just key in your notes on the Needleman Plan (or Needleman vs. Nardoff or the Needleman Noodles campaign) in any length you want, and click the mouse on a few key words—"fallout," "bail out," "roll-out," "leveraged buyout," whatever.

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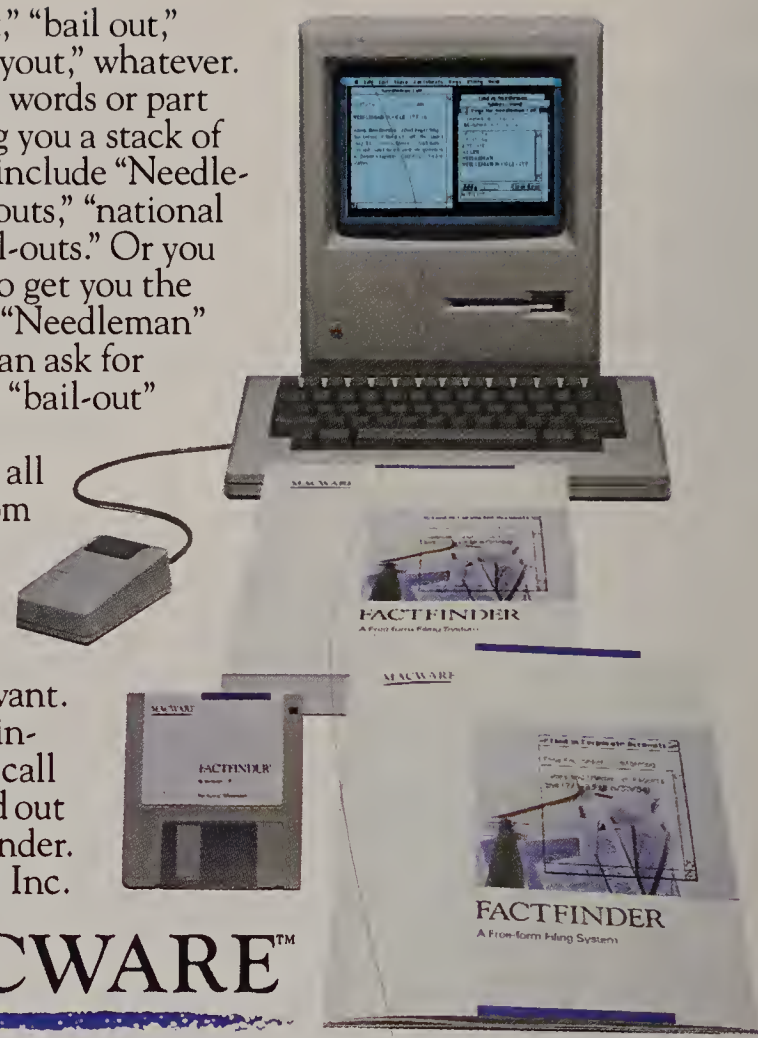
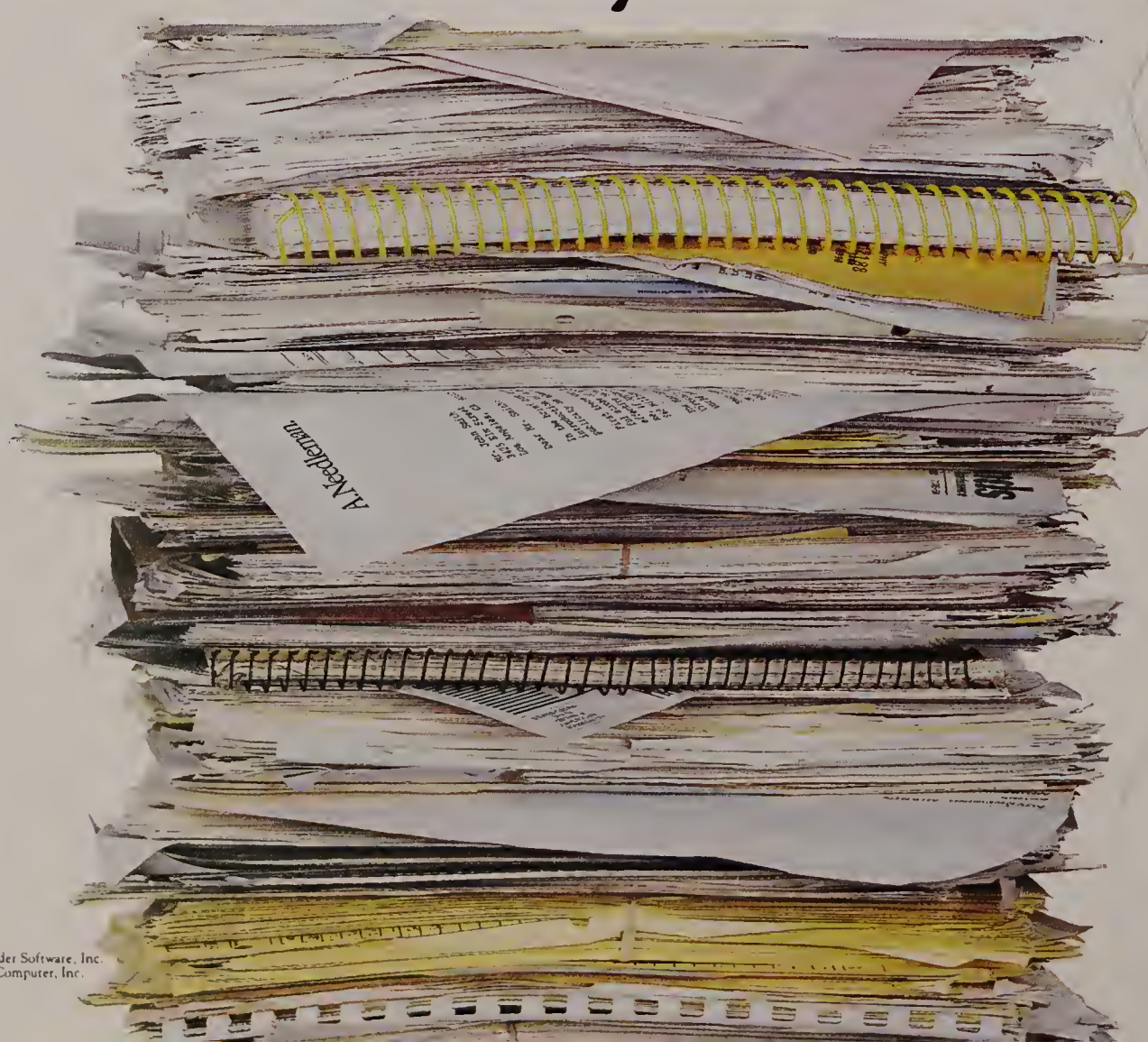


MACWARE™

How to find a Needleman in a haystack.



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Get Info

Macworld's tutor answers questions about the Mac

Lon Poole

Get Info *answers questions about the Macintosh and how it works. Most inquiries deal with application programs, but no topic is too elementary or too advanced. Discussions range from setting up the Mac to programming in BASIC and Pascal. When you need advice about using the Mac, drop me a line. I cannot respond to individual letters, but I will answer the most representative questions.*

The price of a 512K upgrade has come down significantly since it was first announced last fall, but some Mac owners want to save more money still by doing their own upgrades. One of those people wants to know how to get the case open so he can see if a do-it-yourself upgrade is feasible.

A number of questions have come in concerning designing, drawing, and drafting on the Mac. Are *Macworld* drawings done on the Mac? Is it possible to make an accurately scaled, precisely measured drawing on the Mac? Do any programs print drawings on a plotter?

Last, a reader has encountered *MacWrite*'s "too many paragraphs" advisory and wants to know what it means.

Inside Story

Q. I recently tried to open up my Macintosh for a look inside. I was able to remove the five screws that I know of, but the case seemed as solid as before. Is there a trick to getting it open?

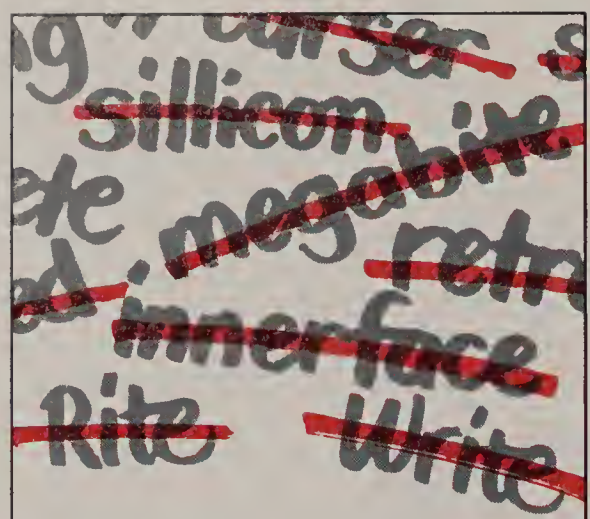
Also, if I were to remove my 128K Mac's 64K chips and replace them with 256K chips, would the computer recognize the increased memory, or are other modifications necessary?
Will Jayne
Irvine, California

A. Apple does not intend the average owner to open the Mac's case, as you can tell by how difficult it is to try. The five screws you must remove, including one hidden behind the clock battery cover, require a special screwdriver with a Torx T-15 tip and an 8-inch shaft. After you remove the screws, a friction coating makes it difficult to remove the back cover; you must pull hard and might even require a friend's help. When the case suddenly comes apart, a piece of foil may fall off the sockets at the back of the digital board. Don't be alarmed. Save the foil so you can slip it back over the sockets when you reassemble the Mac.

Inside you see a large circuit board set vertically called the *analog* board, a large circuit board set horizontally called the *digital* board, the picture tube, and, beneath the picture tube, the disk drive (see "Inside the Mac," *Macworld,* Premier Issue). The memory chips you're interested in replacing are on the digital board—near the front of the computer, underneath the disk drive.

It is possible to replace the memory chips in a 128K Mac with denser memory chips and end up with a 512K Mac. On later 128K Macs, swapping memory chips is all that's required. But upgrading early Macs also requires modifying the digital board with the addition of a data selector chip, two resistors, and a capacitor. Later Macs have the circuit modification built in. The only way I know of telling which Mac you have is by opening the case and looking at the digital board. A new board reads ©1983-84 below the Apple logo, whereas the old board reads only ©1983.

Caution: Performing your own 512K upgrade is risky business. At the minimum you must cut out the original 16 memory chips, desolder and extract each of the 256 pin legs left in the circuit board, solder 16 chip sockets onto the circuit board, and plug 16 new memory chips into the sockets. It's difficult for



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Assimilation

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an inexperienced person to do all that without damaging the circuit board. MassTech Labs (617/448-3450) used to offer a do-it-yourself 512K upgrade kit but discontinued it when too many people ruined their Macs. Now the people at MassTech offer an upgrade service: they send you a Mac-opener tool and a mailing carton, you take the digital board out and ship it to them, they upgrade it and ship it back, and you reinstall it. On the West Coast CJS Enterprises (415/841-7625) and Larco Enterprises (619/755-7827) also offer mail-order upgrades.

Looking for Perspective

Q. I'm developing a program in Microsoft BASIC 1.0 that draws a perspective chart for my architectural practice. I should be able to use the chart as the basis for a geometrically accurate perspective. Unfortunately, a printed copy of the image is taller than the screen original. I need a method to exactly reproduce the screen image, or I must literally go back to the drawing board.
Ken Austin
Houston, Texas

A. I know of three application programs that may meet your requirements: *MacDraw, Tekalike,* and *MacDraft.* All those programs print an accurately sized drawing; an inch on the screen measures an inch on the printout.

MacDraw is a general drawing program from Apple Computer that keeps track of the objects in a drawing rather than each pixel as *MacPaint* does. The program can create scale drawings ranging in size from 8 by 10 inches to 8 by 4 feet. Rulers shown along the top and left edges of *MacDraw*'s drawing window help measure drawings and keep them true to scale. The rulers can be customized in scale and in either metric or United States measure. *MacDraw* can display the dimensions of an object as you draw it, according to the scale established by the rulers.

MacDraft is similar to *MacDraw* but has more features. *MacDraft* has 16 architectural and engineering scales, from twice-size to 1 inch = 100 feet. The program maintains the proper dimensions of an object when you cut it from one drawing and paste it into another that has a different scale. The program can annotate a drawing with dimensions in decimal feet, fractional feet and inches, or fractional inches in the scale you select. *MacDraft* creates circles based on a specified radius, a diameter, or three points, and it creates arcs based on a radius or three points. It rotates objects in 1-degree increments and text in 90-degree increments. *MacDraft* allows you to zoom in on a drawing until it's magnified eight times, add detail, and zoom out. The program can merge several objects into a single object, enabling you to create cutouts through which you can see objects beneath. *MacDraft* can also distribute objects along a line, such as desks along a wall. For more information about *MacDraft* contact Innovative Data Designs, 1975 Willow Pass Rd. #8, Concord, CA 94520, 415/680-6818.

Tekalike is a terminal communications program that makes your Mac act like a Tektronics 4010 or 4014 graphics terminal. This capability gives you access to business graphics and mainframe computer-aided design and computer-aided manufacture (CAD/CAM) software. *Tekalike* can draw your design on several plotters in up to eight colors; the colors appear as patterns on the Mac screen. *Tekalike* can also make a *Mac-*

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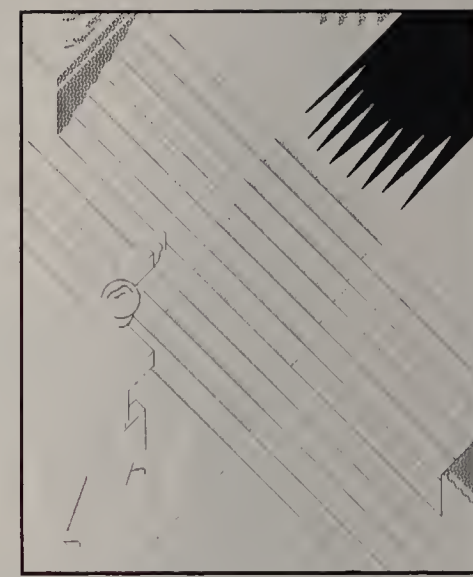
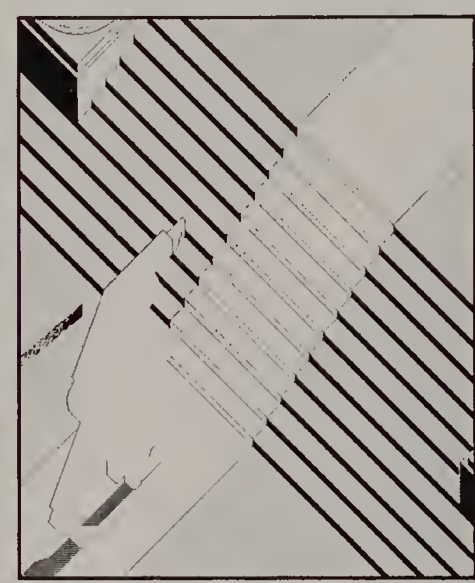




Mac Color Separation
You can use the Mac to create color separations for MacPaint *drawings; the one shown here appeared in the December 1984 issue of* Macworld. *The artist made a copy of the drawing for each color. He then deleted all the pixels on each copy except those to be printed in a particular color.*

Paint document from the mainframe program's output. *Tekalike* is from Mesa Graphics, P.O. Box 506, Los Alamos, NM 87544, 505/672-1998.

Separating Colors

Q. I am a graphic designer at Tektronics and know I'd have a better way of communicating with the folks here if I could design on a computer. The marketing people in our company have Macs, but I have to sell my manager on buying one for designers. I wonder if the art on page 103 of the December 1984 issue was drawn on a Mac.
Sara Beverly
Wilsonville, Oregon

A. *Macworld* Art Director Bruce Charonnat says that all drawings in the magazine are created on the Macintosh with *MacPaint*. *MacPaint* is also used to create the color separations needed for four-color printing, in which you use ink in three primary colors—yellow, magenta, and cyan—and in black to render all colors. A desired color is specified as a percentage of saturation in each of the four ink colors. To prepare the color separations for a *MacPaint* drawing, first add registration marks to the original to ensure proper alignment. Then make a copy of the drawing for each color. Edit each copy so that only the pixels to be printed in a specific color remain. In a few cases *MacPaint* drawings are printed out and hand-colored in watercolor, a method that's similar to how black-and-white photographs are sometimes hand-tinted. Some drawings are printed out in color on an Imagewriter, with a different colored ribbon for each separation.

The Plot Thickens

Q. Is there any way I can use the Hewlett-Packard 7470 plotter at work with my Mac?
Bud Gladstone
Fort Wayne, Indiana

A. The *Tekalike* communications program described in response to the previous question works with an Apple plotter, a Hewlett-Packard 7475A plotter, a Houston DMP 29 plotter, and a PC 695 plotter. The program also works with your HP 7470 plotter, which limits the number of pen colors you can use to two at a time and accommodates only 8½-inch-wide paper.

Another Macintosh program from Mesa Graphics, called *Plot-It,* can draw a *MacPaint* document on any of the plotters that work with *Tekalike*. You select the paper size in a Page Setup dialog box and a

drawing color from a pull-down menu. *Plot-It* displays your document using a feature like *MacPaint*'s Show Page. A selection rectangle lets you designate how much of the document you want drawn. *Plot-It* enlarges the selected portion to fill the page while maintaining original proportions.

You can select part of the first selection to be drawn in a specific color. This feature makes it easy to prepare color charts on paper or on acetate slides. *Plot-It* can also make a color composite from a series of color-separation documents.

Too Many Paragraphs

Q. I'm typing a script that demands heavy tabulation because of dialogue, stage directions, and other elements. I have resigned myself to the dialog box that interrupts my work with the message, "Not enough memory to do this!" However, I was less than overjoyed at "Too many paragraphs for this document!" I resent the inference that the chosen format is improper and that if I click OK, I accept the criticism!

Why does the Mac count paragraphs?

Dick Johnson
Thousand Oaks, California

A. According to Joe Shelton, software products manager at Apple Computer, the disk-based version of *MacWrite* counts a paragraph every time you press the Return key or insert a formatting ruler. The program counts such paragraphs in order to keep track of a document's size. By counting paragraphs instead of total characters as most word processing programs do, *MacWrite* can scroll through a long document quickly. The program allows you to create a document with 500 paragraphs on a 128K Macintosh and 2000 paragraphs on a 512K Mac. The memory-based versions of *MacWrite*, with version numbers 2.2 and lower, do not count paragraphs.

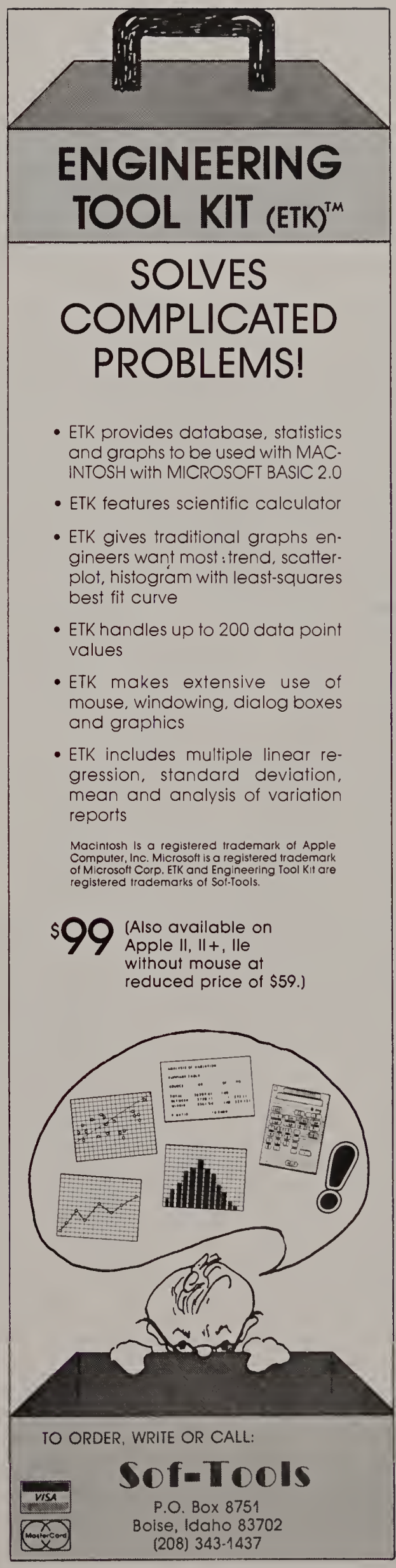
Because *MacWrite* marks every return character and formatting ruler as a paragraph, a single line and even blank lines are considered paragraphs. A document such as your script is probably full of one-line paragraphs.

Shelton suggests a technique with which to avoid the "too many paragraphs" message. The technique does not work in fully justified text and requires you to indent the first line of each paragraph. Mark the indentation with a tab on the ruler instead of the indentation arrow; instead of pressing Return to end a paragraph, press the Tab key.

A word of warning: As of this writing, a disk-based version of *MacWrite* has not officially been released. *MacWrite* versions numbered later than 2.2 have an error that can destroy work in progress without notice. Make sure you're using an official release of *MacWrite*.

Send your questions to Get Info, Macworld, *555 De Haro St., San Francisco, CA 94107. Send electronic mail to CompuServe 70370,702 or The Source BCW440.*

Lon Poole is a Contributing Editor of Macworld. □



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IT WAS HER EYES...

. . . that tipped me off. They looked out through the fancy fur and perfume and told me something was wrong, dead wrong. I'd seen those eyes somewhere, in some long forgotten place, some dingy nightclub on the south side of Chicago. But here she was, strictly East Side Manhattan, if you catch my drift.

She was askin' me to stick my neck out for the long green, but a nasty feeling made me think twice before I made my move. I had to put those eyes to a face, and fast. The solution was on my desk: MAC PRIVATE EYE.™ One quick call to my inside man at headquarters was all it took. Within seconds he copied the mug shot with his MAC PRIVATE EYE video digitizer, modemed it straight to my Macintosh,™ and put the I.D. on this dame. The $595.00 I spent on that MAC PRIVATE EYE probably saved this flatfoot from some serious trouble. One thing WAS clear, my MAC PRIVATE EYE would never leave me short for important information like maps, graphs, blueprints, photos, security I.D.'s, and a thousand other things I hadn't thought of yet. There was only one question; how did I ever get along without it?

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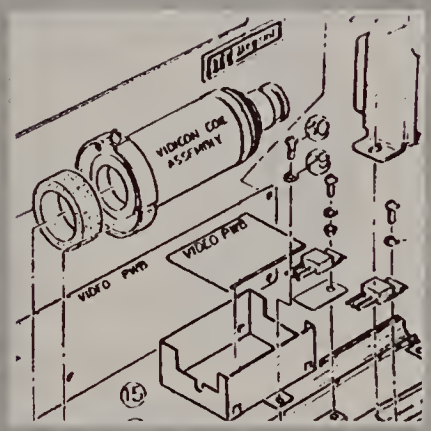

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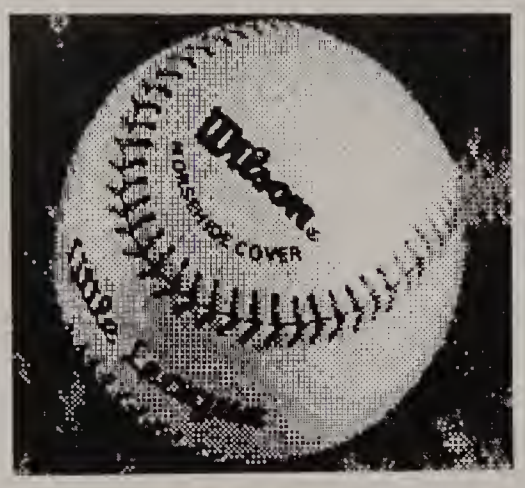

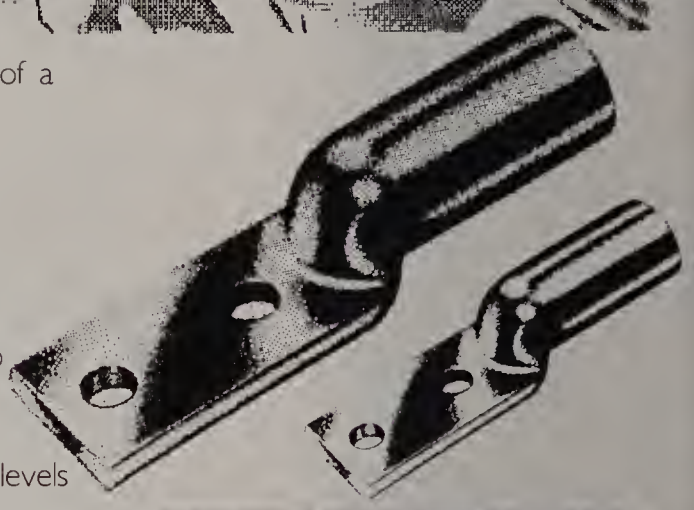

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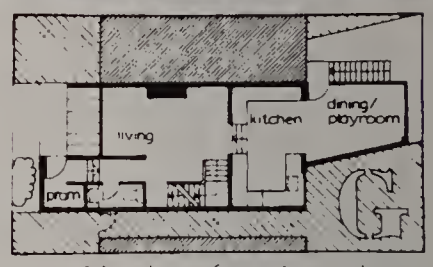

Color change--for instance, the ... of a single hue in an achromatic

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The MAGIC unit is a microprocessor-based intelligent controller that transforms a selected portion of a video image into a serial bit stream which is sent to the Macintosh computer at 500,000 bits/second.

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MAGIC without Camera includes:
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- Instruction Manual

MAGIC with Camera includes:
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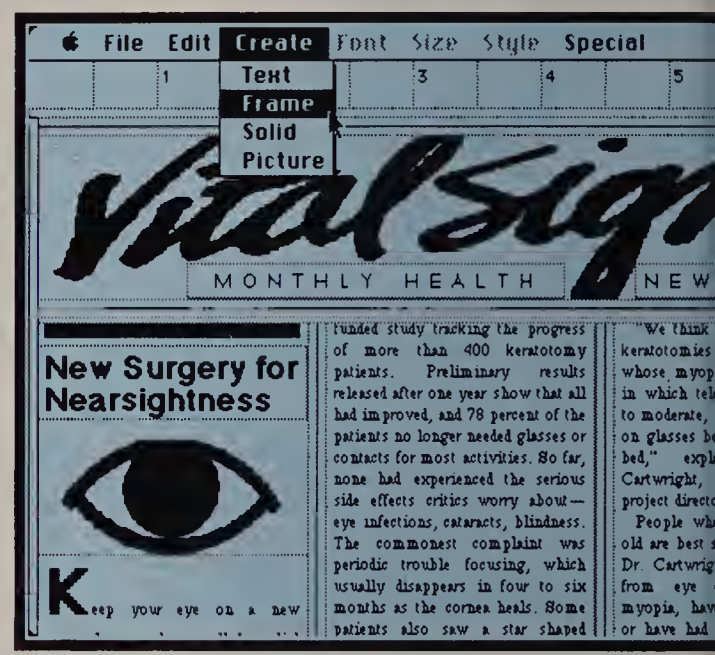

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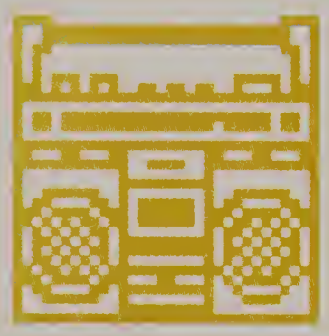
Roll Over Mozart

Nicholas Lavroff

Wolfgang Amadeus Mozart was the quintessential musical prodigy. He gave his first public recital at age five, composed a sonata at the age of seven, and wrote a symphony at eight. So rare was his genius that he could hear the music in his mind before it was ever written down or played. As a result, all Mozart ever needed to compose one of his masterpieces was a quill and parchment. We can only speculate on whether Mozart would find *MusicWorks* and *ConcertWare* useful or entertaining programs.



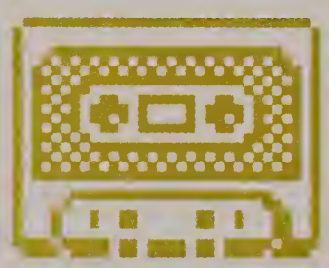
When you choose the MusicWorks *icon, you can compose on a regular musical staff or, if you are not familiar with musical notation, on a special grid.*

Like most prodigies Mozart never really grew up. His life story is punctuated with anecdotes displaying a prankish, childlike character. For example, he is reputed to have bet Franz Joseph Haydn that he could write a piano piece that Haydn could not perform. Haydn jumped at the opportunity to one-up the precocious Mozart and accepted the bet. He should have known better.

Somewhere in the middle of the composition, while Haydn's left hand was busy tickling the bass notes and his right hand the treble, Mozart had inserted a single note in the middle of the keyboard. "No one can play this!" exclaimed a disgusted Haydn, whereupon Mozart, to Haydn's added consternation, sat down and played the piece without error. Mozart's solution was childishly simple: when he came to the impossible note, he simply leaned forward and struck the key with his nose.

One might speculate on Mozart's reaction to MacroMind's *MusicWorks* (published by Hayden Software) and Great Wave Software's *ConcertWare,* two "music-processing" programs for the Macintosh. On the one hand Mozart's playful nature would have been fascinated and delighted with the novelty of creating musical copy by pointing and clicking. On the other hand, the serious musician in him would have been frustrated by the limitations inherent in the programs, considering that he was capable of feats of imagination far beyond their capacity.

Of course, it would be unfair to judge the programs through the eyes of a giant such as Mozart, whose favorite instrument was nothing less than a symphony orchestra. For the rest of us who do not aspire to such lofty heights, *MusicWorks* and *ConcertWare* warrant closer scrutiny.



Pieces that you compose with MusicWorks *are represented by the same icon as pieces composed by Bach and Beethoven.*

Music Processing

The best thing that ever happened to the written word is undoubtedly the word processor. This tool is more useful to a writer than gallons of correction fluid, for the simple reason that unlimited modification is possible before a document is committed to paper. To pursue a parallel in music, the main question you should ask about *MusicWorks* and *ConcertWare* is whether they are to music what word processors are to the written word. Asked another way, do those music programs represent a tool for the serious musician or a sophisticated toy designed to distract and entertain. In my opinion the answer lies somewhere in between.

MusicWorks

When you start up *MusicWorks,* the screen displays three windows: the staff, the overview, and the panel (see Figure 1). The staff window is the musical equivalent of a sheet of paper, with default values set for the key signature (the key of C) and the time signature, or meter (4/4 time). You can change the key and the time signature at any time, although changes apply retroactively and affect the entire piece.

Are music programs to music what word processors are to the written word?

The overview window displays notes as a function of frequency (on the vertical axis) over time (on the horizontal axis), in the same way as music is represented on a player piano roll. The panel window controls the main playback functions, such as stopping and starting, as well as volume, tempo, and use of the four speakers, which correspond to the Mac's four voice channels.

You compose music by selecting notes, rests, or accidentals—sharps, flats, and naturals—on a palette and clicking them onto the staff. The palette also includes an eraser and an I-beam pointer for removing or inserting musical elements. *MusicWorks* keeps track of the number of beats in each measure and automatically goes to the next measure as soon as one is full.

In case you are unfamiliar or uncomfortable with traditional musical notation, you can compose on the grid, which you select on the Windows menu. Writing music on the grid is like composing on a graph with pitch plotted as a function of time (see Figure 2). Pitch is represented on the grid's vertical axis by the keyboard, while the horizontal axis represents time. Pointing the cursor and clicking causes a small square to appear at that position on the grid. This square, which is similar to a FatBits dot, is equivalent to one sixteenth note, the shortest musical element available in *MusicWorks.*

As you click dots onto the grid, *MusicWorks* translates your efforts into musical notation and places it on the staff. The program automatically inserts accidentals to correspond with the key signature and keeps track of the metering, so that you can give vent to creative energies without having to worry about the notational requirements.

Whether you compose on the staff or on the grid, you can do so in real time by clicking the Repeat button in the panel window before you start composing.

Selecting the Repeat button plays back every note you enter as you enter it and continually repeats the passage that you're writing.

Voices

The Macintosh has four voice channels, allowing it to generate up to four independent sounds simultaneously. With *MusicWorks* you can program each channel separately, so you can create chords or a bass line to accompany the melody. Four voices are more than what is produced by, say, a clarinet, which is a single-voice instrument, like the flute, the trumpet, and the oboe; however, four voices fall far short of the capacity of a piano or a guitar. A piano, after all, can generate as many notes simultaneously as the pianist has fingers—or more if you count a person's nose.

Tonal Quality

Music is more than variations in pitch, duration, and amplitude, and *MusicWorks* has included options to complete the musical picture. Timbre, for example, is that elusive element of music that distinguishes one instrument from another. *MusicWorks* lets you manipulate timbre by selecting from two pure tones and preprogrammed instruments such as piano, flute, organ, trumpet, kazoo, and chimes. Unlike the selection of a new key or time signature, the selection of a new instrument does not operate retroactively.

MusicWorks also allows manipulation of a note's sound envelope (see "The Sound of Music"). The Variations menu gives you choices related to a note's onset, offset, and other effects, such as vibrato, tremolo, and percussion. Like the selection of timbre, selecting a new sound envelope affects a composition only from that point on.

If you really want to make your own music, *MusicWorks* lets you draw your own sound waves by selecting the Draw Synthesizer option from the Windows menu. Although this method of generating sound waves lacks mathematical precision, witnessing freehand drawings converted to sounds can encourage some worthwhile experimentation.

The Music Editor

Like any good word processor, *MusicWorks* includes complete editing facilities, by way of the cut, copy, and paste functions. Because most musical compositions involve variations on one or two themes, editing functions save you effort by letting you copy a phrase from one part of a score to another or from one voice to another. Canons, such as "Three Blind Mice," are easy to process, since they are little more than repetitions of the same phrase from different starting points. Under the Options menu the phrase can be

(continues on page 77)

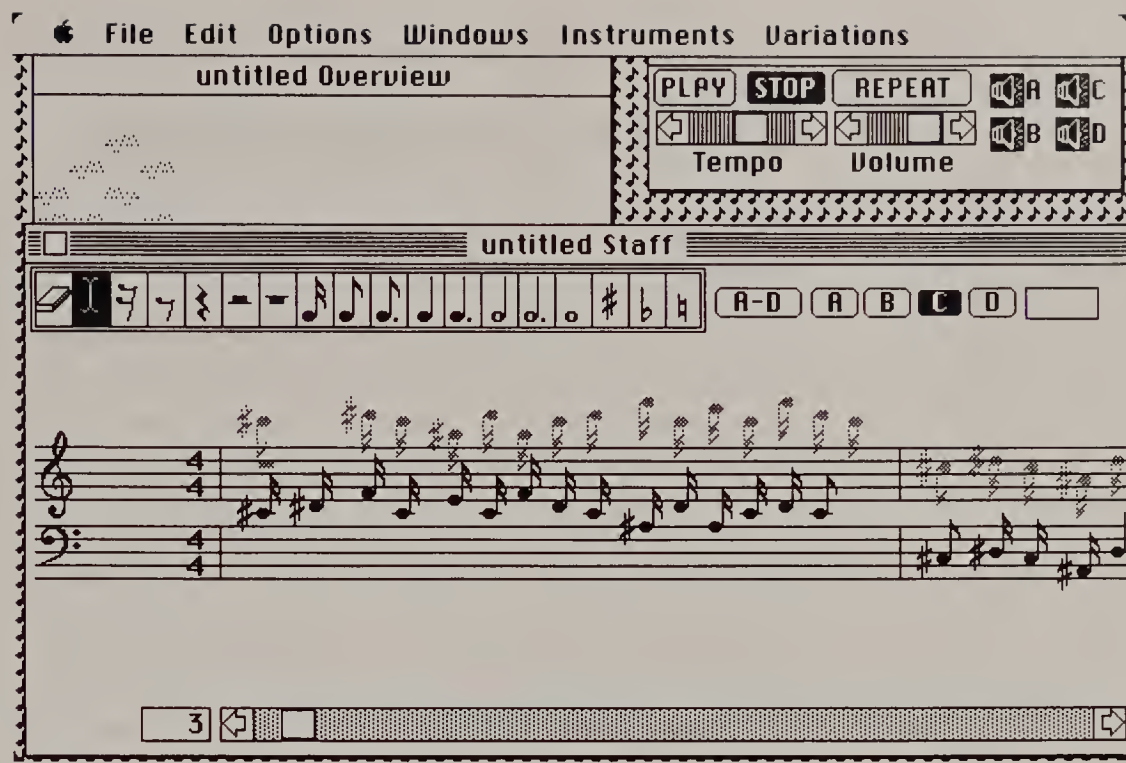


Figure 1
MusicWorks' *main screen shows the staff, overview, and panel windows. By clicking Play, you can hear whatever is displayed on the staff, even before it is saved to disk. Note that the C channel is the selected voice.*

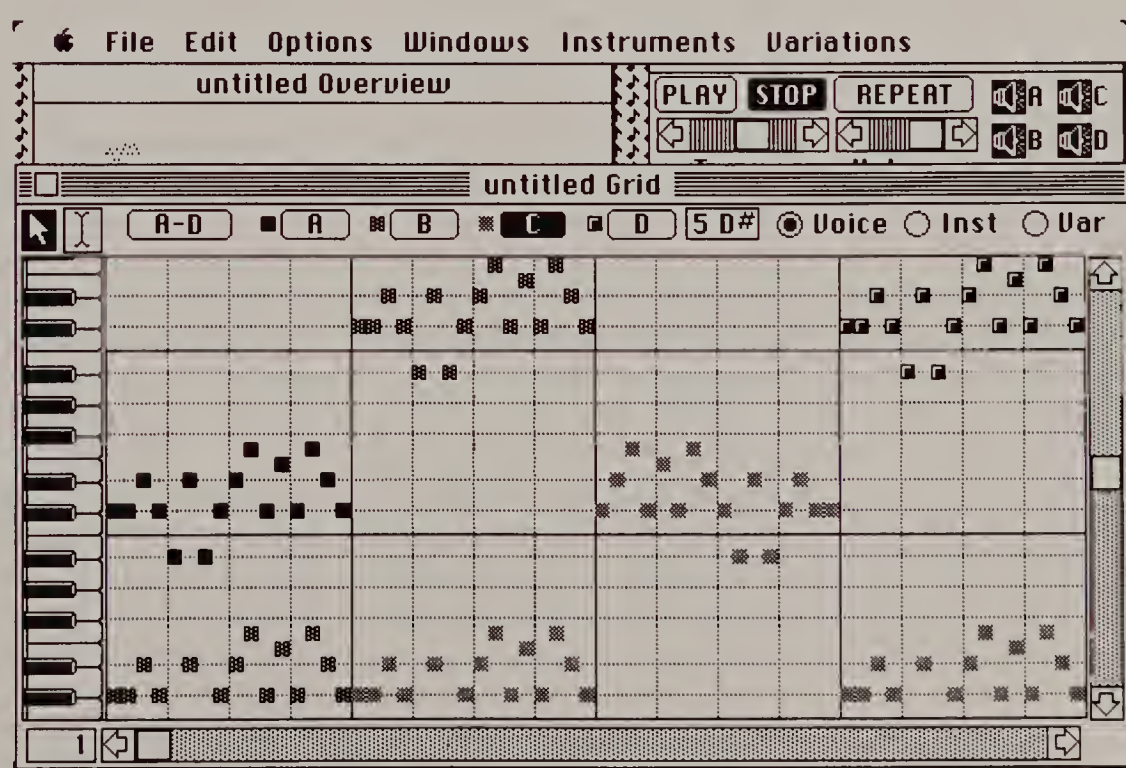


Figure 2
With MusicWorks' *grid window, you can produce musical copy even if you don't know the difference between a crotchet and a semiquaver. The grid's vertical axis represents the piano keyboard (or pitch), while the horizontal axis represents the note's duration and temporal position. Each click produces a square dot, equivalent to a sixteenth note.*

The Sound of Music

Most musical sounds are easily quantifiable. Any pure tone, for example, can be defined in terms of its pitch, duration, and amplitude. The pitch of a note indicates its relative position on the scale and is directly related to its frequency, or the rate at which the source of the tone vibrates. A tuning fork, which vibrates at a certain frequency and produces a tone of the corresponding pitch, may be regarded as a bridge between physics and music, since it embodies two aspects (frequency and pitch) of the same phenomenon.

The duration of a tone is simply how long it lasts, the period between its onset and offset. The third characteristic, amplitude, refers to the intensity of the tone and is related to the distance traveled by the vibrating body as it moves back and forth. For example, if you pluck a guitar string lightly, it produces a soft sound, because the string moves a relatively short distance as it vibrates.

Although those three characteristics are sufficient to define a pure tone, music includes tonal qualities that are more difficult to measure. These additional qualities, known as timbre and sound envelope, are responsible for the uniqueness of the sounds produced by different musical instruments. Subjectively, timbre is the "color" of the sound produced by a particular instrument. A trumpet and a violin, for example, may both play the same note (pitch) for the same length of time (duration) at the same volume (amplitude) and yet be easily distinguishable, because of the different method each one uses to make the surrounding air vibrate.

A note's timbre is determined in part by its harmonics, or overtones. For example, A above middle C, called *concert pitch,* has a frequency of 440 cycles per second (cps). When concert pitch is the first harmonic, the second harmonic vibrates at 880 cps, twice the frequency of the first, while the third harmonic vibrates at 1320 cps, three times the frequency of the first, and so on. The reason concert pitch sounds different on a piano from on a violin is that each instrument produces a different combination of harmonics. The ability to reproduce a given sound is limited in part by the number of harmonics the sound source is able to generate. When a computer is the sound source, this limitation is usually a function of the software.

A note's sound envelope is a combination of four characteristics known as attack, sustain, decay, and release. The characteristics refer to aspects of the note's behavior as it lives out its short life. The attack, for example, refers to the way the note begins and is related to how fast it reaches its full amplitude, or intensity. A note's attack might be classified as hard or soft, depending on whether it has a fast or a slow onset. Sustain refers to the note's duration at full amplitude, while decay and release refer to the way in which the note fades away and then terminates. A note's decay may be long or short, depending on how long it takes to fade from full amplitude.

The ability to manipulate the four variables making up the sound envelope is what distinguishes a virtuoso musician from a weekend player. Without variations in harmonics and sound envelopes, music would be nothing but a collection of pure tones, which, even though correct, would sound flat and mechanical.

(continued from page 75)

moved up or down the scale and flipped on its vertical axis, so that the last note becomes the first, or on its horizontal axis, so that the highest note becomes the lowest. In addition, the editing functions let you modify any phrase, including its instrument, its sound envelope, or its pitch.

Then Play On . . .

The music on the staff or grid windows can be played back at any time by clicking the Play button in the panel window. During playback you can adjust the tempo and the volume or turn each of the four speakers on or off. The Repeat button lets you play back any passage or selection repeatedly.

MusicWorks does not beam notes together, a long-standing musical convention that simplifies sight-reading.

In case your appreciation of music exceeds your ability to create it, the *MusicWorks* disk includes 43 popular selections, from the Brandenburg concertos to "A Little Night Music."

MusicWorks is a well-designed program with features that make it convenient and easy to use. You can compose and then play your composition back with the click of a button. You can select key and time signatures, instruments, and sound envelopes from the pull-down menus, and you can listen immediately to the effect your choices have.

On the negative side *MusicWorks* severely limits the length of musical passages you can create and edit. For example, in 4/4 time *MusicWorks* can accommodate compositions of no more than 64 measures, hardly the stuff of which symphonies are made. Furthermore, *MusicWorks* does not beam notes together, a long-standing musical convention that simplifies sight-reading. Finally, the program ignores such conventional notation as volume and repeat symbols, forcing the composer to do without or use alternative, nonstandard notation.

MacroMind, which designed *MusicWorks,* is aware of those limitations and plans to release an advanced version later this year. The advanced version will create thirty-second notes and triplets and allow beaming of notes. Also planned for the advanced version is an add-on keyboard for direct entry of music.

ConcertWare

The designers of *ConcertWare* placed a great emphasis on sound quality and on the production of musical copy. They did so, however, at the expense of some of the convenience found in *MusicWorks,* such as the ability to play back a newly penned composition without first saving it to disk. For this reason *ConcertWare* tends to be less useful when you compose, since playback requires more than the click of a button, even if your new creation is only a few measures long.

The *ConcertWare* disk contains three interrelated programs: Music Player, Music Writer, and Instrument Maker. *ConcertWare* features a unique Transfer menu, which lets you bypass the Macintosh desktop as you move back and forth among the three programs.

A conductor icon represents ConcertWare's *Music Player program. You can play back selections using any of 34 available instruments.*

Play It Again

ConcertWare has two hours of musical selections, which can be played back in any order and repeated ad infinitum. In addition Music Player lets you change instruments when you play back a selection, in case you want to hear, say, Handel's *Messiah* played by a harmonica quartet. Music Player has 34 instruments or musical sounds from which to choose, including three types of pipe organ (cornopean, closed flute, and salicional) and five types of single-reed woodwinds (alto sax, soprano sax, harmonica, clarinet, and bass clarinet).

Because *ConcertWare* uses a greater number of amplitude levels than *MusicWorks* does in defining a sound envelope, its sound quality is noticeably superior, especially in the fine distinctions between the various instruments. Even so, neither program ever quite lets you escape the awareness that a computer is making the music. In other words, don't expect the Macintosh to take the place of your tape deck, no matter which software you select.

Selecting ConcertWare's *Music Writer icon lets you compose on a musical staff or directly from the Macintosh keyboard.*

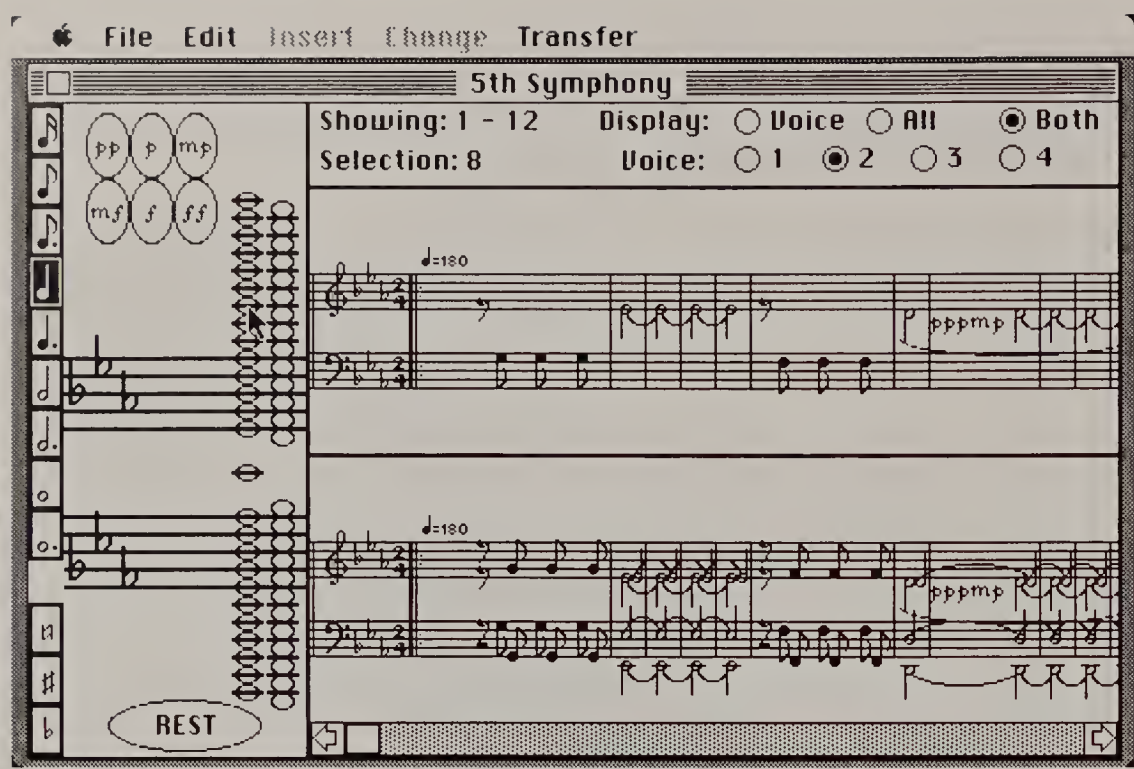


Figure 3
To enter musical notation with ConcertWare, *click the pitch buttons to the left of the staff. Each click deposits a note of the currently selected length to the right of the last note entered or at the insertion point.*

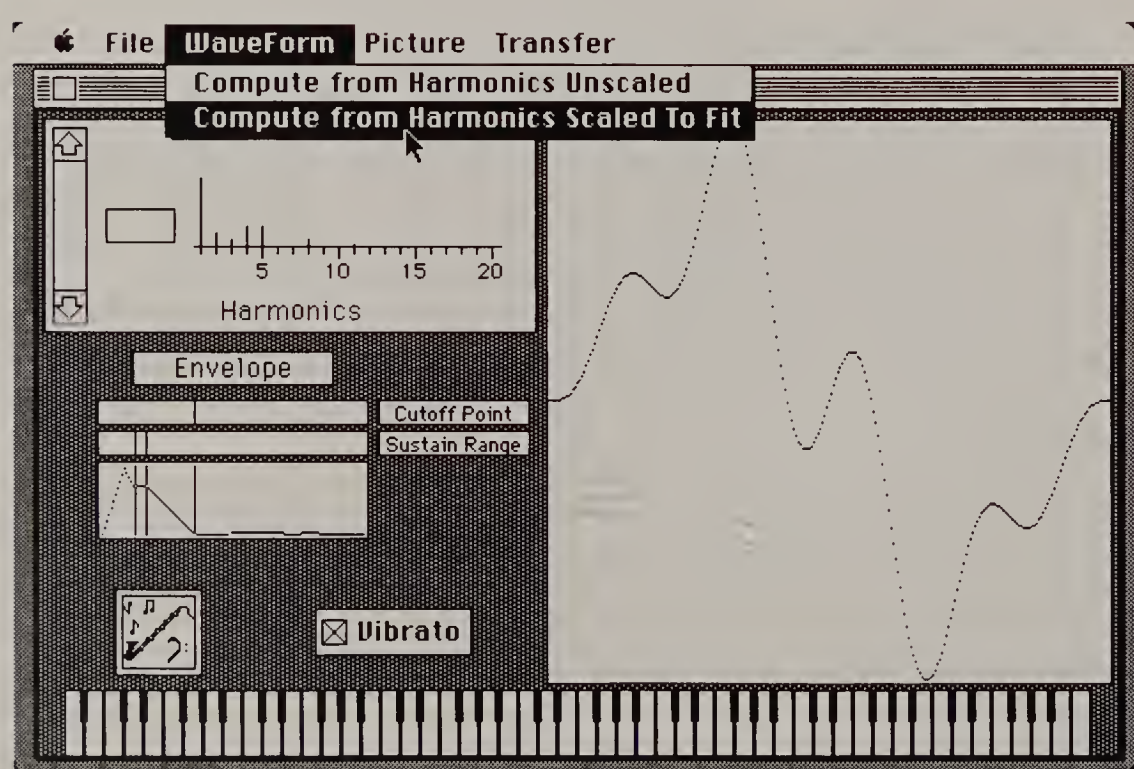


Figure 4
ConcertWare's *Instrument Maker lets you define a note's timbre by modifying its harmonics. After selecting any of 20 harmonics (from the Harmonics window, upper left) you can increase or decrease the intensity of each one relative to the others. You can compute the waveform, which is depicted in the large window at the right, by selecting an option on the Waveform menu.*

Like *MusicWorks, ConcertWare* lets you change the volume and tempo during playback. With *ConcertWare,* however, you can adjust the volume only by way of the Control Panel on the Apple menu, which momentarily interrupts playback.

Music Writer

With *ConcertWare*'s Music Writer you create musical copy by selecting a desired note from the column of boxes on the left of the screen and then, in contrast to *MusicWorks,* by clicking the appropriate pitch button to the left of the staff (see Figure 3). As you click the pitch buttons, notes appear on the staff from left to right. You can also insert notes by clicking the I-beam pointer anywhere along the staff.

Rests and accidentals are entered the same way. Clicking the large rest button causes a rest of the same length as the selected note to appear on the staff. To enter an accidental, you click the appropriate box and then select the pitch of the note that you want to sharp or flat.

ConcertWare also allows musical entry directly from the Macintosh keyboard, a feature that can speed up the creation of musical copy.

Key and time signatures are selected in a fashion similar to *MusicWorks'.* Unlike *MusicWorks, ConcertWare* lets you change both key and time signatures in the middle of a composition by making the appropriate selection on the Insert menu. Whatever function you select on the Insert menu takes effect at the current insertion point. In addition to the key and time signatures, the Insert menu also allows you to change tempo and to enter repeats and first endings onto a score. Tempo is measured by the number of quarter notes per minute. *ConcertWare* accommodates a range of 30 to 450 quarter notes per minute.

ConcertWare uses traditional repeats and first endings notation to inform the musician (and the program) that a certain passage is to be repeated in whole or in part. A repeat actually consists of two separate symbols, a right repeat and a left repeat. The right repeat, which is made up of two vertical bars to the right of two dots on the staff, tells the musician to go back to the left repeat, which is marked by two vertical bars to the left of the two dots, and to play the enclosed passage again. A first ending is an additional symbol between the left and right repeats that tells the musician to repeat the passage only up to that point. Although *MusicWorks* also lets you repeat passages, it does so by way of the cut, copy, and paste functions. The repeated passage, therefore, appears twice on a *MusicWorks* score, a method that does not comply with traditional notation.

ConcertWare's editing functions are similar to *MusicWorks'.* Under the Change menu you can move any passage up or down one octave or one semitone at a time. Finally, *ConcertWare* lets you program the volume as you compose by clicking any of the six volume buttons in the upper-left corner of the Music Writer

window. The volume levels range from *pp* (pianissimo, or very soft) to *ff* (fortissimo, or very loud). In keeping with standard notation, the appropriate symbol appears on the staff to signify the change.

Instrument Maker

ConcertWare's most fascinating feature is its ability to generate a wide variety of sounds, or "instruments." Selecting Instrument Maker on the Transfer menu presents you with a multifunction screen that allows you to create your own waveforms, sound envelopes, and musical instrument icons (see Figure 4). You create waveforms by augmenting one or more of the 20 harmonics available in the Harmonics box. Once you select the harmonic by clicking the I-beam pointer, you augment it by moving the scroll bar up to the desired amplitude. In this way you control the relative intensity of each harmonic you choose to include in your waveform. When you are satisfied with the harmonics, you can compute the waveform, which will appear in graphic form in the large Waveform box. At this point you can taste the fruits of your labor by playing a one-finger melody on the keyboard at the bottom of the screen. The sounds you hear are your own creation.

ConcertWare's most fascinating feature is its ability to generate a wide variety of sounds.

The Envelope box lets you define the growth, sustain, and release stages of a waveform by manipulating the pointer inside the box. When you are satisfied with the sound you create, you can draw an icon to identify it for reference. You have the choice of using the waveform as the icon, drawing an icon freehand, or using an existing instrument icon as a basis for yours. You can then save the completed waveform and its icon to use in compositions.

Even though *ConcertWare* is superior to *MusicWorks* in terms of sound quality and the ability to compute waveforms from harmonics, it is decidedly inferior in terms of convenience and ease of use. For instance, *ConcertWare* lacks *MusicWorks*' instant replay capability. In other respects *ConcertWare* comes off sounding better, since it allows you to change time and key signatures in the middle of a composition without affecting the entire piece and to insert volume and repeat symbols at any point. In addition, *ConcertWare* lets you create and edit pieces up to several hours in length, a distinct advantage for the serious musician. Finally, Great Wave Software, like MacroMind, is planning an advanced version of *ConcertWare*. It, too, will allow beaming and triplets and accommodate an add-on keyboard for musical entry.

The Return of Mozart

How would Mozart have reacted to these music programs? His initial delight would quickly fade with the realization that the programs do not beam notes, do not allow triplets, and cannot accommodate notes shorter than sixteenth notes. Of the two programs, Mozart would probably have chosen *ConcertWare*, since it can accommodate more notation (such as volume and repeat symbols) and much longer compositions than *MusicWorks*. Furthermore, Mozart would have had no need for *MusicWorks*' compositional niceties, such as instant replay, since he could hear the music in his head as he composed. On the other hand, for the beginning or casual musician, *MusicWorks*' convenience can provide hours of entertainment and enjoyment. Most notably *MusicWorks* can be a painless introduction to music theory, provided you do not lose sight of its limitations. □

ConcertWare's *Instrument Maker lets you design the sound of your own musical instruments. You manipulate waveforms and sound envelopes and create icons to represent the instruments you design.*

Nicholas Lavroff is a Contributing Editor of Macworld.

MusicWorks
Hayden Software Co.
600 Suffolk St.
Lowell, MA 01854
800/343-1218
List price: $79.95

ConcertWare
Great Wave Software
P.O. Box 5847
Stanford, CA 94305
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List price: $49.95

There's no

Don't keep those cards and letters coming.

Thank you for all your entries in our "We'd like to think you're a little strange" contest. We hate to see a good thing end, but it's time to put the contest away, before they come to put us away. Your letters started in drips, then turned into dribbles, and then became droves, and now we're drenched. We spend so much time reading your bizarre tales that we're neglecting our work. Thanks for some great stories.

For the next month or so we will be running ads featuring the winners, and we're in the process of determining an appropraite gift (official MacConnection straight jackets?) for all the entries. Strange stories postmarked before midnight May 31st will still be considered. (You must know how to fake a postmark with MacPaint by now.)

Read it and leap!

We're sending a complimentary copy of the current issue of the Macintosh Buyer's Guide to everyone who places an order totalling over $50. This comprehensive guide to Macintosh add-ons and software was assembled by Redgate Publishing, in conjunction with Apple and is an essential reference book for Macintosh owners. Offer good while our ample supplies last.

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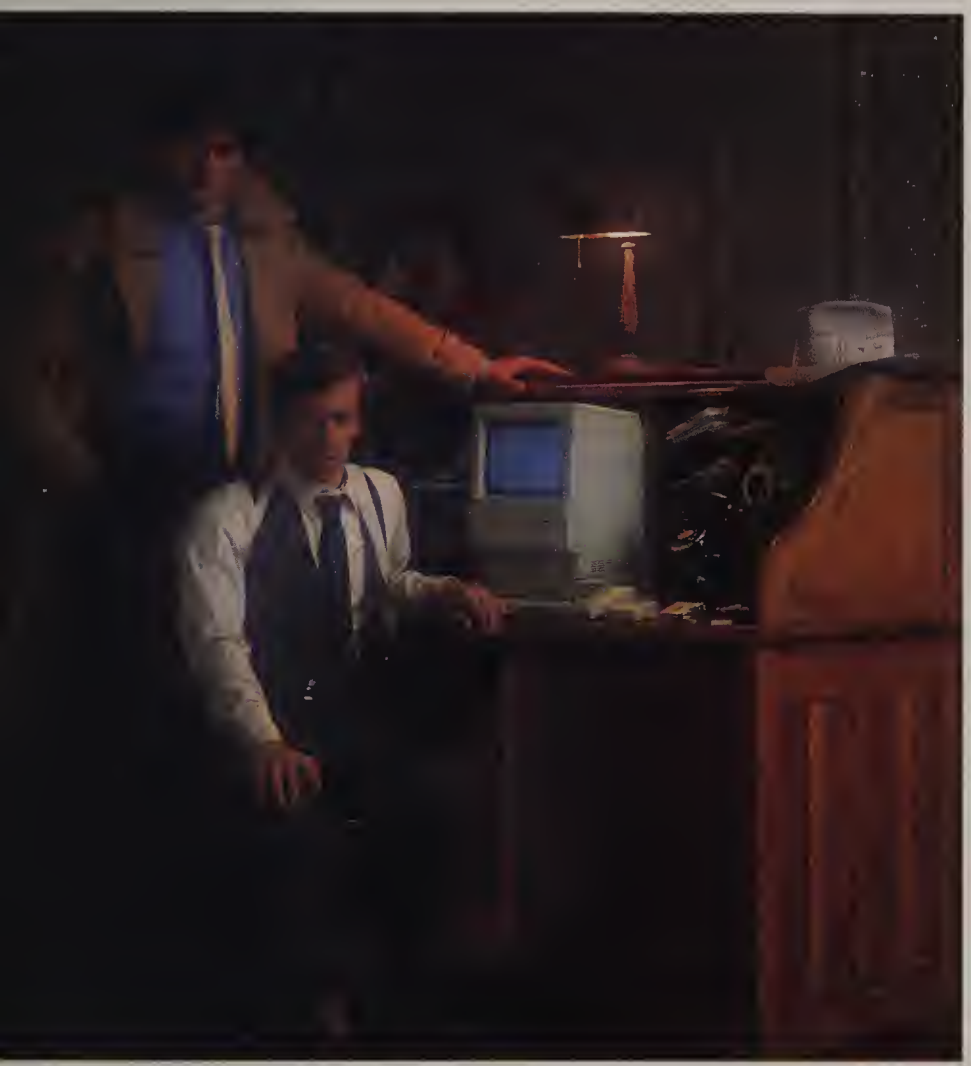

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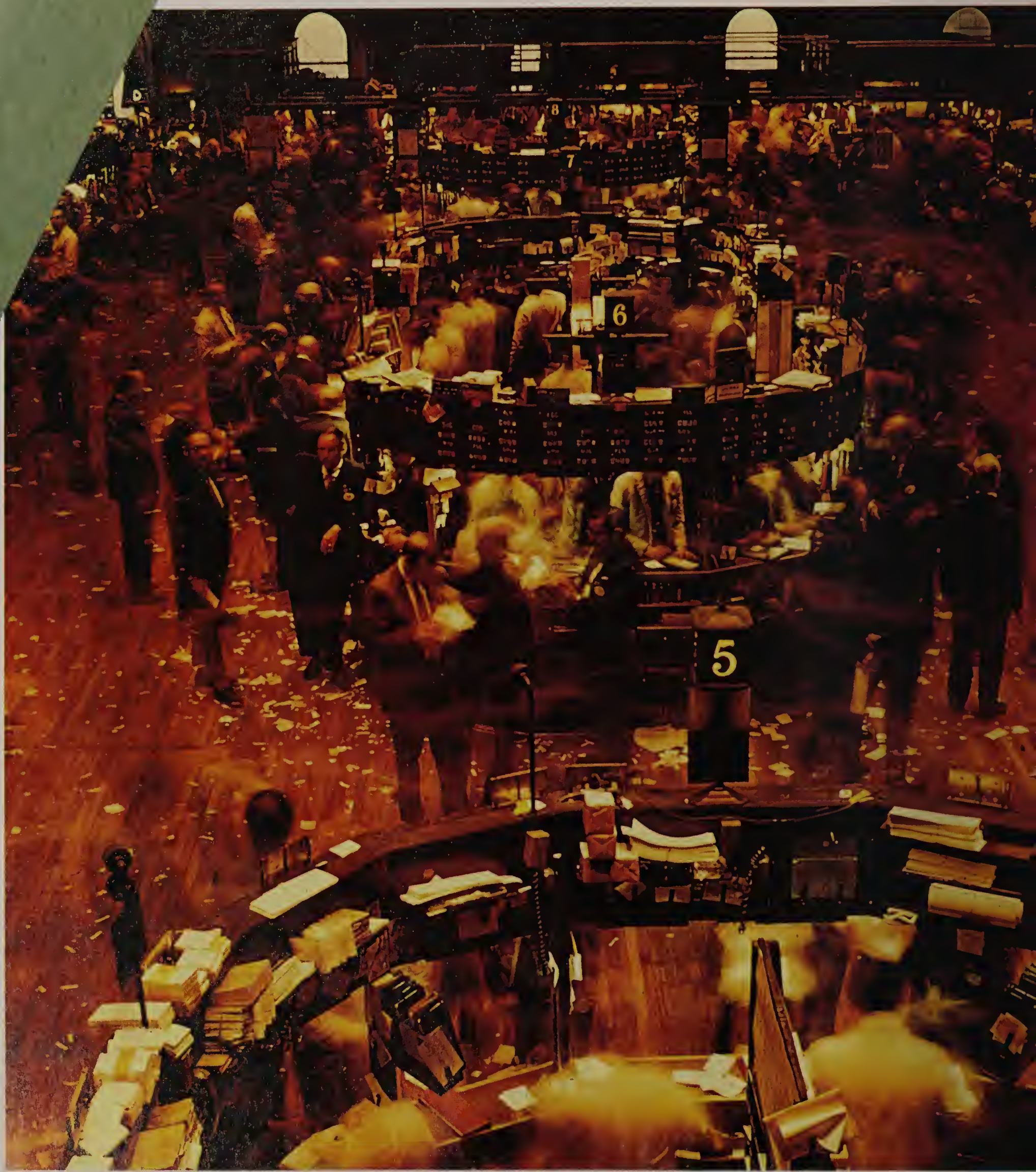
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5

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Saul D. Feldman

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The Dow Jones News/Retrieval service contains a treasury of financial material including past and current stock prices, estimates of many stocks' future earnings, and profit reports and balance sheets of over 3000 stocks. The service also contains business news stories, excerpts from the most recent edition of the *Wall Street Journal,* and transcripts from the PBS series "Wall Street Week." In addition to financial information the service provides weather reports, sports news, movie reviews, an on-line encyclopedia, and access to MCI Mail, Comp-U-Store Catalog Shopping, and the Official Airline Guide.

You connect with the Dow Jones computer in Princeton, New Jersey, through Uninet, Telenet, or Tymnet (in Canada you call Datapac). At least one of these communications networks is available in most large or medium-size cities in the United States. If you cannot call a network locally, you have to pay your phone company toll charges in addition to any fees for using the Dow Jones service itself.

The service is highly complex. Logging on is a multistep process that varies with each communications network. Navigating around the system involves learning specialized commands. The system itself is not very forgiving; using the Backspace key to correct improper entries, for example, yields an error message.

Straight Talk

Dow Jones offers communications software for personal computers to simplify the use of its News/Retrieval service. *Straight Talk,* the Macintosh version of the software, was developed for Dow Jones by Solutions and includes membership in and an hour's use of the service.

Straight Talk simplifies communicating with Dow Jones by automating the process of calling and logging on to the service. Once you set up the program with the appropriate modem setting, the telephone numbers of the communications networks you use, and the log-on sequence, you tap the service by clicking the Dow Jones icon on the desktop.

A nice feature of *Straight Talk* is that it lets you list up to three phone numbers for communications networks (see Figure 1). If the program gets a busy signal or doesn't make a connection, it automatically calls the next number. Unlike many communications programs, however, *Straight Talk* does not allow you to enter dashes between the prefix and the final four digits of the phone number.

Inside Dow Jones

Straight Talk simplifies not only logging on to the Dow Jones News/Retrieval service but also moving around within the service. Pull-down menus list various sections of the service from past quotations or the most recent news story on the same stock to movie reviews or an on-line encyclopedia. For example, to obtain past price quotations on a stock, choose Historical Quotations on the Quotes menu.

Moving around the service with the mouse is convenient, but the method has a limitation. Since the service is constantly expanding, databases made available after the release of *Straight Talk* do not appear in the program's menus. You have to use keyboard commands to reach recently added databases. Dow Jones claims that upgrades will be given to owners of the program.

Once you reach the area of the service that you're interested in, you type specific commands in a small rectangle at the bottom of the screen (see Figure 2). You press Return to send the command to the service. *Straight Talk* overcomes one of the service's most troublesome limitations by allowing you to backspace over typing errors within the rectangle. I haven't found this capability in any other communications program.

One of the best sections of the service is News, where you can find business stories from 90 seconds to 90 days old. To obtain a list of headlines about a subject you want to investigate, you type a keyword in Dow Jones's somewhat arcane format. For example, to find news about Apple Computer, you type **.AAPL 01**. A list of headlines appears, each preceded by a two-letter code. You choose to read a story that interests you by selecting its two-letter code with the mouse or typing the two letters on the keyboard.

The Dow Jones News/Retrieval service is not cheap. Using it can cost up to $2.40 a minute in prime time. So plan your on-line

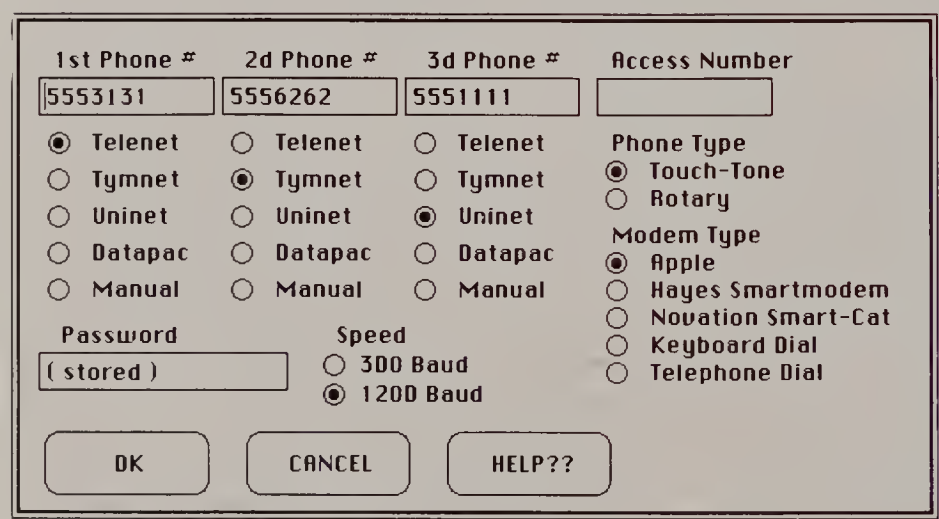


Figure 1
Straight Talk *automates the process of logging on to the Dow Jones News/Retrieval service. When you select the Change Dow Jones option from the main menu, a dialog box appears with settings for your modem type, speed, phone service, and password.*

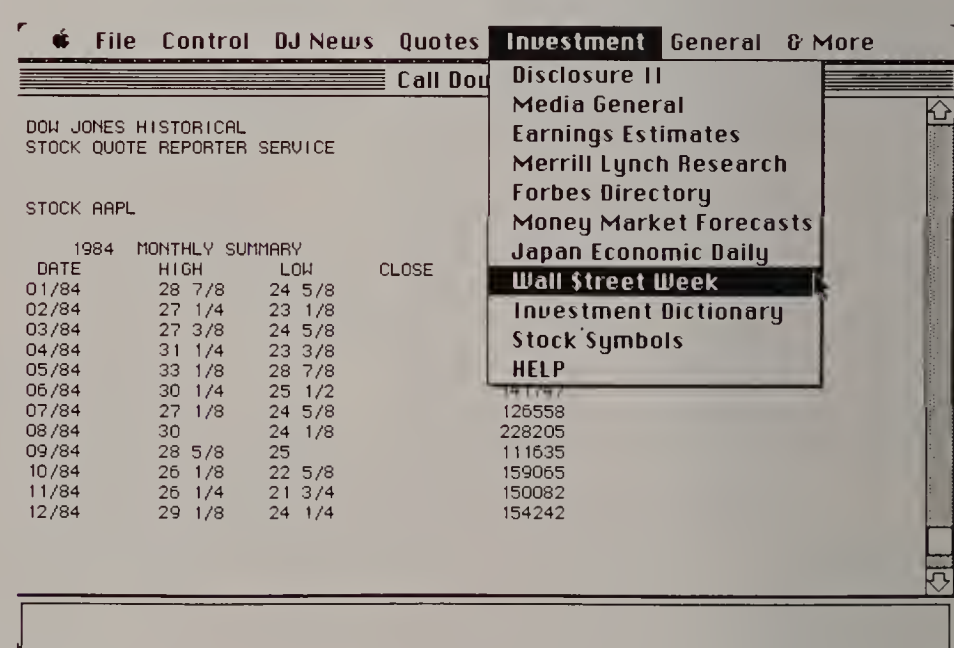


Figure 2
You type in keyboard commands a single line at a time in the small open rectangle at the bottom of the screen. Here the document window displays past quotes for Apple Computer stock. The Investment menu shows the types of investment information available.

time to avoid the charges that quickly mount as you figure out what to search for next. *Straight Talk* lets you use the Note Pad to plan a communications session and save the time you spend typing text. Before you log on, open the Note Pad and type in commands that you plan to use for such tasks as obtaining quotes for certain stocks or reading the latest news story on a company. Once you're on the service, you can issue commands quickly, without typing, by opening the Note Pad, selecting the appropriate text, and clicking Send Accessory on the File menu (see Figure 3).

A Short Memory

When I tried *Straight Talk,* I read only two brief stock reports before I received a warning that the program's memory was nearly full (see Figure 4). Most communications programs set aside a portion of the personal computer's memory–called a *buffer*–to serve as a temporary holding area for data you send to and receive from the host computer. The buffer allows the information to be reviewed and manipulated before it is abandoned or saved on the personal computer's disk. The warning I received told me that if I did not wish to lose the information that I was holding in the Macintosh's buffer, I would have to log off. Obviously a major drawback, *Straight Talk*'s buffer held only 10K of information–the equivalent of six double-spaced typewritten pages–when I received the

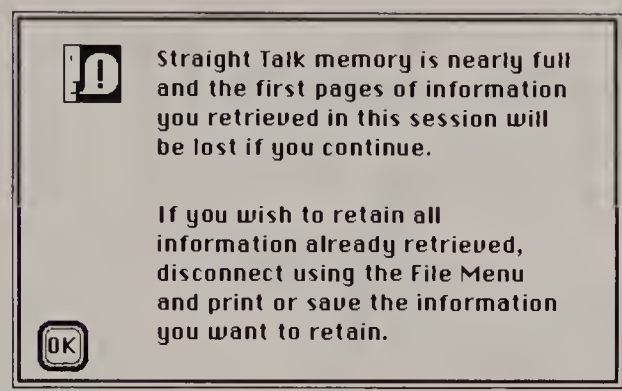


Figure 4
When you collect only 10K of data in Straight Talk*'s buffer, an alert box informs you that you're nearly out of memory. The small buffer severely restricts the program's usefulness when you need more than a few brief items from the service.*

warning. I had to interrupt my work if I wanted to reexamine or save any of the information I had already seen.

In general, communications programs have significantly larger buffers than *Straight Talk*'s. *MacTerminal*'s buffer, for example, holds 15K of data on a 128K Mac. More importantly, other programs don't force you to log off if you want to save the data in the buffer. In fact, many programs allow you to automatically save data in the buffer to disk. The buffer's 10K limit applies even on the 512K Mac, although a Dow Jones spokesperson says that a future version of *Straight Talk* will have an expanded buffer on a 512K Mac.

Although *Straight Talk* has limited buffer capacity, it has good off-line editing capabilities. Data received contains extraneous symbols and text, such as prompts and headings, that you may want to delete. Once off line, *Straight Talk* allows you to review, edit, and print data before or after saving the data on disk. The program presents the information in a window with a vertical scroll bar; you can use cut, copy, and paste commands to rearrange text.

For more extensive editing, such as adding labels or comments to a document, use a word processing program. The manual recommends that your *Straight Talk* disk include *MacWrite,* which can open *Straight Talk* documents without converting them.

While *Straight Talk* is a serviceable general communications program, I don't recommend it. Icons for CompuServe and The Source are on the desktop; however, opening either only connects you to Tymnet or Telenet (see Figure 5). Once

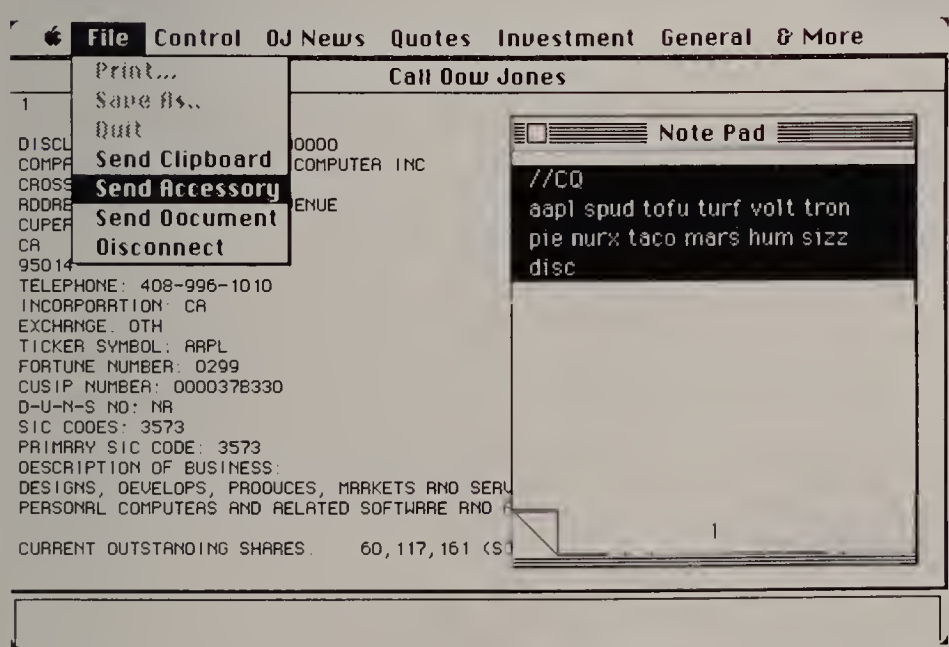


Figure 3
Straight Talk *helps you save time and money with a clever use of the Note Pad. Before logging on to the Dow Jones service, you type commands in the Note Pad. When you're in the service, you select appropriate commands and send them by selecting the Send Accessory option on the File menu.*

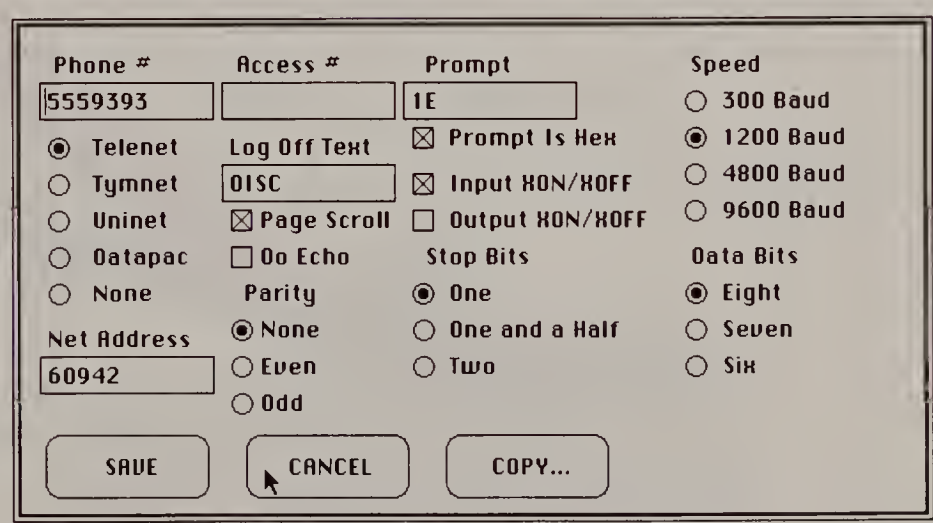
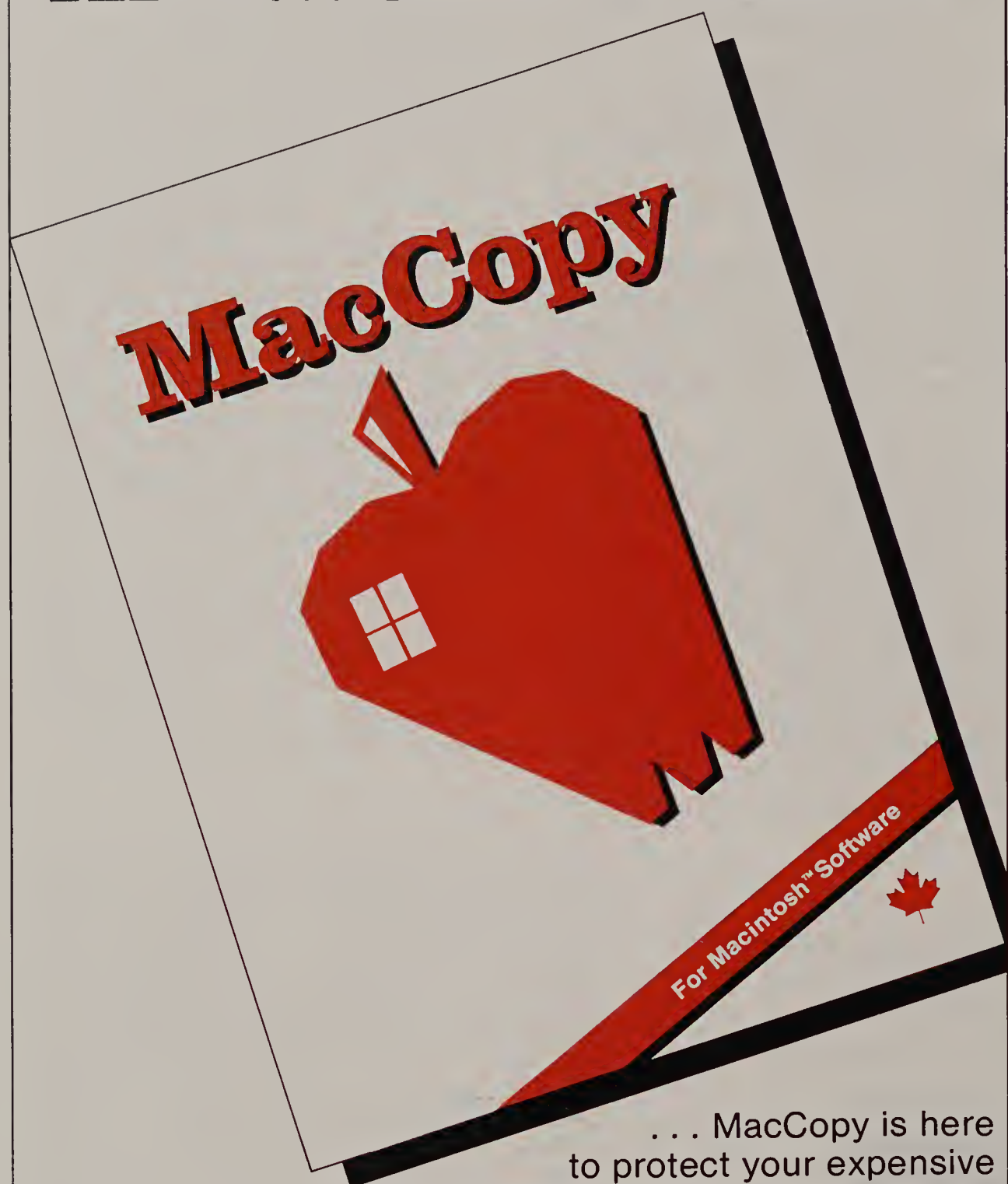


Figure 5
Calling services other than Dow Jones is less convenient and requires more complicated communications settings. You can dial only one number automatically, and you have to listen to a busy signal for 25 seconds before you can hang up or redial.

"Ahh...Safe at Last!"



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you're connected to a network, you still have to log on to CompuServe or The Source manually. *Straight Talk* would be more useful if it could log on to other time-sharing services, such as CompuServe and The Source, as automatically as it does the Dow Jones News/Retrieval service.

Some problems arose when I used *Straight Talk* to call services other than Dow Jones. I called a popular local bulletin board, and as usual the line was busy. *Straight Talk* should have terminated the call at once; instead I had to listen to a busy signal for 25 seconds before I could hang up or call again. The program should be able to redial a busy number automatically until a connection is made. In addition I was often confronted by an alert box stating that connection wasn't possible and that I should check the hardware connections when a busy signal was clearly the only problem.

Once you're connected to a network, you still have to log on to CompuServe or The Source manually.

Services such as The Source and CompuServe require you to enter a lot of data from the keyboard; however, *Straight Talk* restricts data entry to the open rectangle at the bottom of the screen. After you type each line, you press Return, and the program moves the text to the main window. The small space is adequate for the brief commands used in the Dow Jones service, but it is cumbersome for other services. Having to view the text you type

away from where it first appears is annoying and counterintuitive. Imagine using a word processor that moved text to another place on screen whenever you reached the end of a line.

Trade-Offs

Straight Talk fails as a general communications program. But the program is tailor-made for reaching the Dow Jones News/Retrieval service. *Straight Talk* completely automates the log-on procedure, and the pull-down menus guide you easily through many components of the service. Furthermore, you can plan a session with the Note Pad to save time and money, and you can backspace over typing errors.

As I mentioned earlier, the program has a serious limitation: you can't retrieve more than 10K of data from the Dow Jones service at a time before you log off. If you want to get only the latest quotes on a few stocks or read a couple of news stories, this limitation won't be a problem. But if you want to gather all the news stories about a major stock, you would be better off using a communications program. □

Saul D. Feldman is a free-lance writer based in San Francisco.

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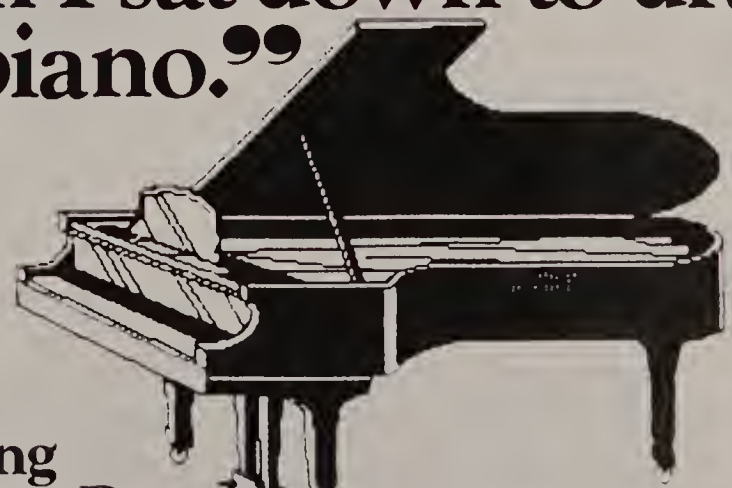

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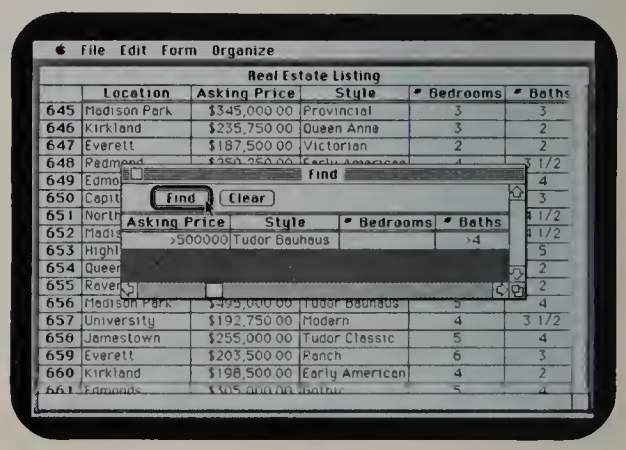

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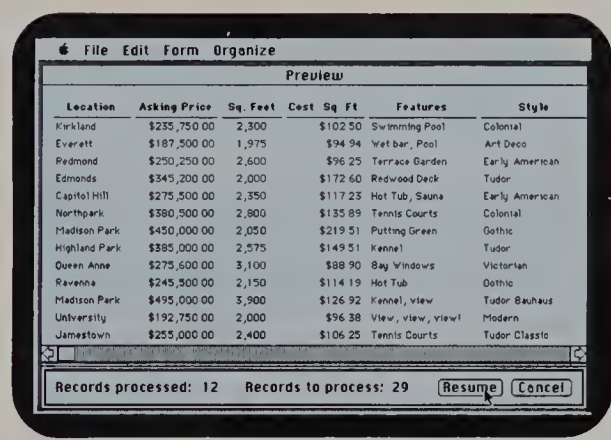

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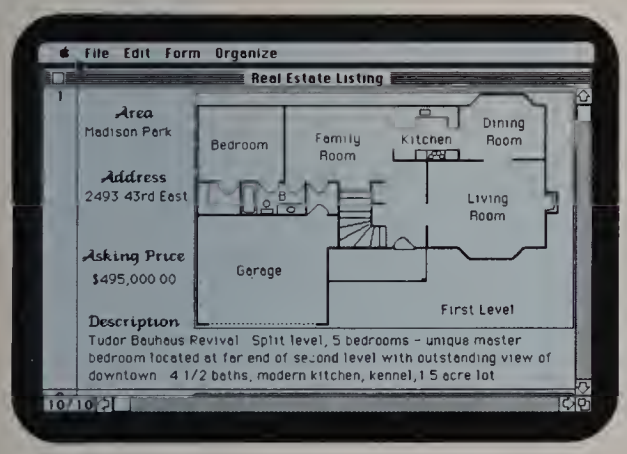

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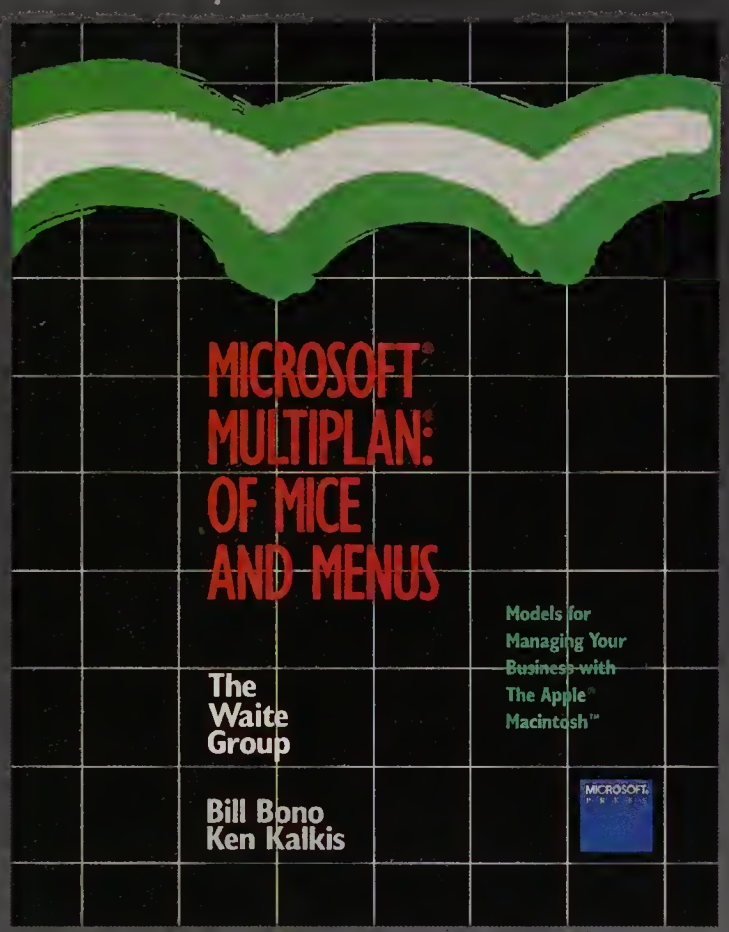

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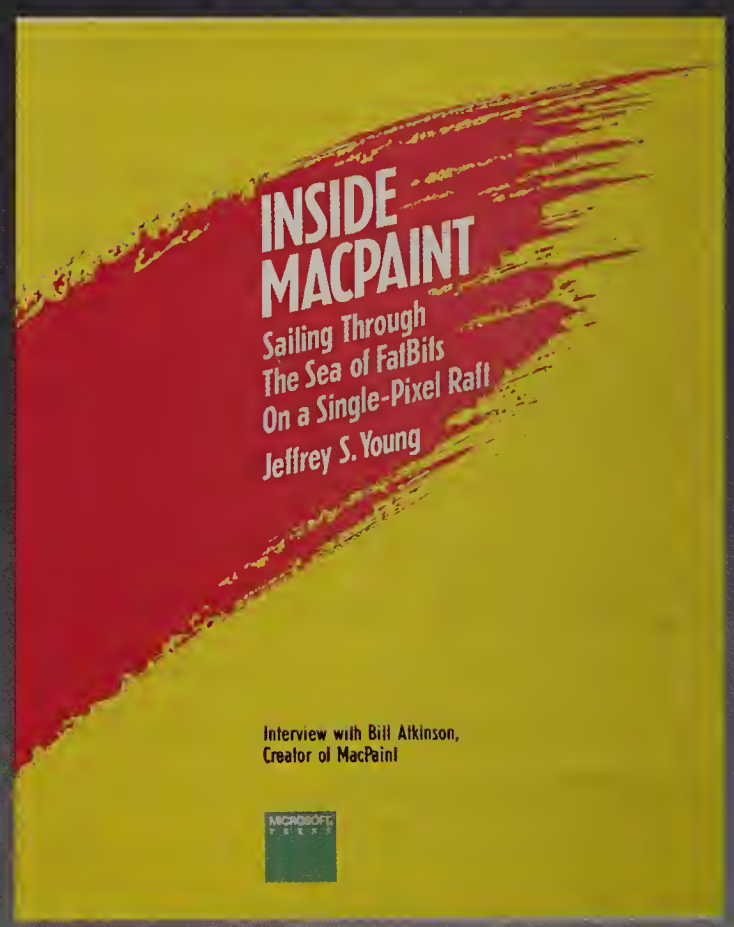

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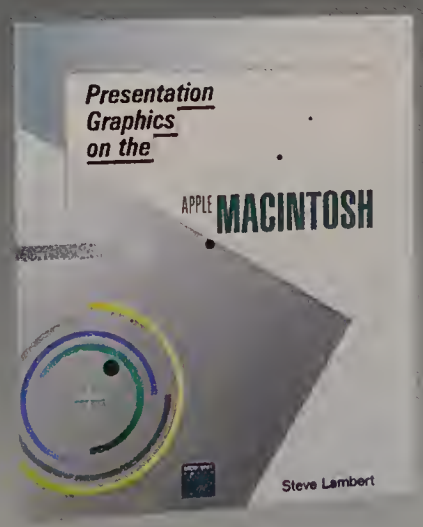

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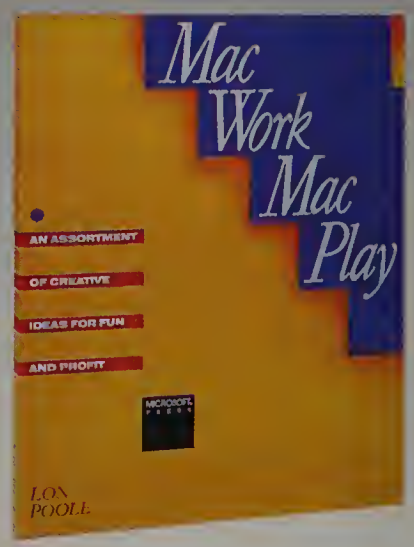

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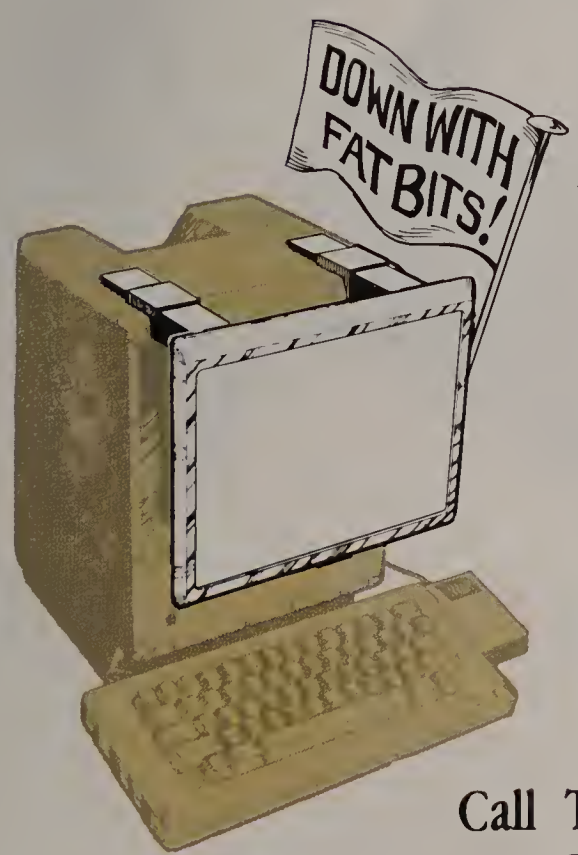

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Windows in Motion

Erfert Nielson

Animation Toolkit brings the Mac's screen to life

I've always wanted to create animation on a computer, but I've never had much of a hankering to learn BASIC or Pascal; I had enough trouble learning Spanish. Therefore, when a friend gave me a demonstration disk of Ann Arbor Softworks' *Animation Toolkit No. 1* at a user group meeting, I rushed right home to try it out. No documentation came with the disk, so I had to figure out how the program worked.

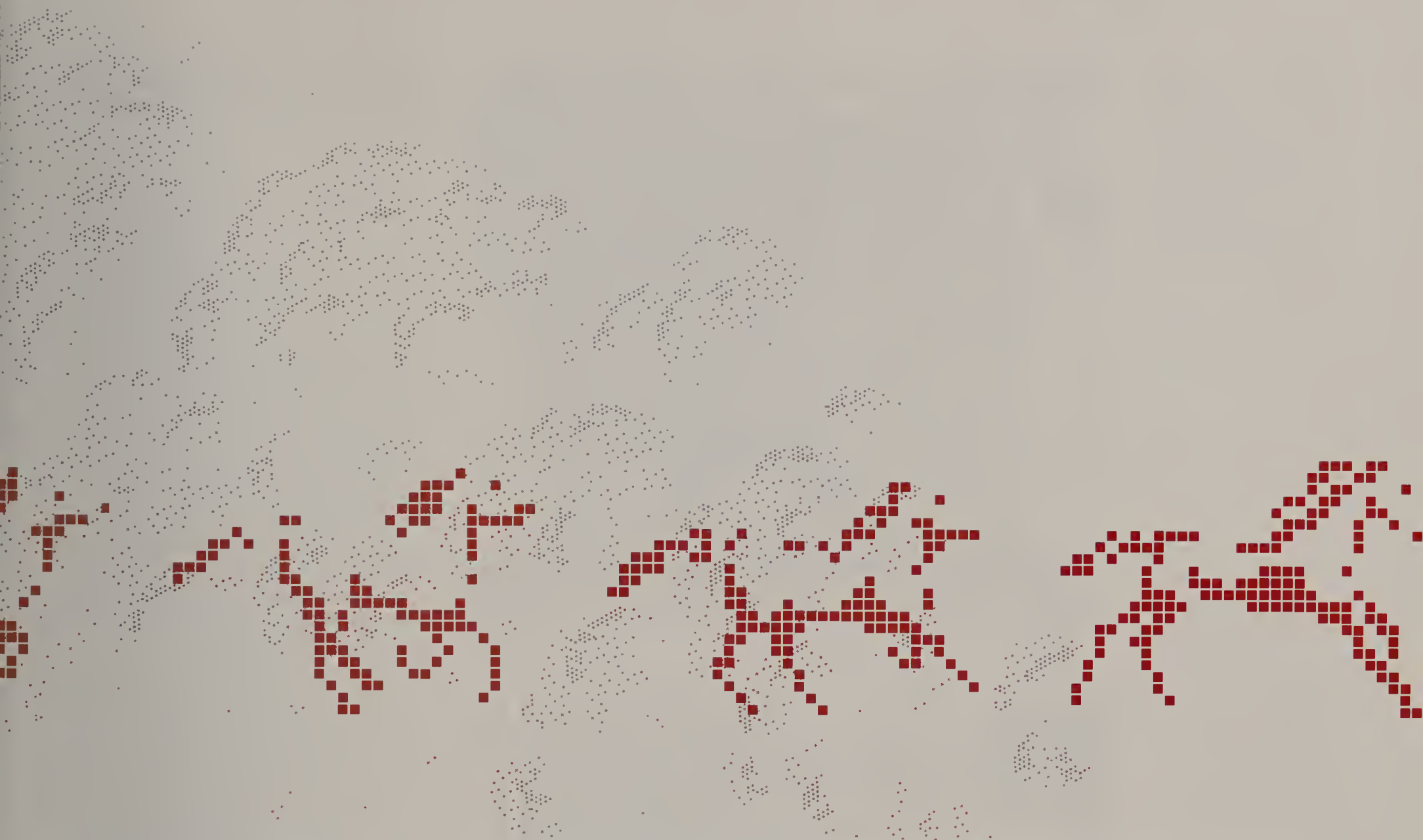
The fact that I was able to experiment with the program for half an hour and figure out how to use most of its features without a manual is a tribute to *Animation Toolkit*'s accessibility. *Toolkit* makes good use of standard Macintosh features such as windows, scroll bars, and icons and includes a set of tools similar to those found in *MacPaint,* providing a familiar environment for people who use the Mac.

When I received a final, packaged version of *Animation Toolkit,* the well-organized, 27-page manual filled me in on the areas I hadn't been able to figure out on my own. The first section of the manual is a tutorial that walks you through editing a sample animation sequence provided on disk. The second section provides detailed explanations of the program's features.

Animation Toolkit allows you to produce simple animation by pasting images into a series of frames and playing back the sequence in a single window, creating the illusion of motion. The program's format is somewhat limited; for example, you can't move an image around the entire screen or in front of a separate background. But *Toolkit* is so easy to use that it's ideal for beginning animators.

Frame Editor

Toolkit provides five windows in which you draw, edit, and play back your animation. The size of the Frame Editor window, where you draw and edit pictures, is fixed, but the grid in which you draw can be either 32 by 32, 48 by 48, or 64 by 64 dots, or pixels. The Frame Editor's grid is



similar to *MacPaint*'s FatBits; it allows you to work on an enlarged view of a drawing, changing a single dot at a time if necessary.

Unfortunately, the manual doesn't clearly explain how to change the Frame Editor's grid from its default size of 48 by 48 dots. A one-sentence reference to changing the grid size is in the section on menus on page 23, but you're likely to miss it unless you read the manual from cover to cover before playing with the program. After a bit of experimentation, I found that you can set the number of dots in the grid by opening the Animation Toolkit icon from the desktop, choosing Close from the File menu when the untitled document appears, and then choosing New from the File menu. At that point a dialog box appears that asks you to select one of the three frame sizes.

The Frame Editor provides a selection of eight drawing tools, which are similar to *MacPaint*'s tools (see Figure 1). In fact most of the icons are identical to the corresponding *MacPaint* icons; the only pictograph that looks unfamiliar is the third icon from the top. Clicking on it turns the Frame Editor's grid display on and off. In addition to the eight tools in the tool palette, the Tools menu allows you to flip, rotate, or invert an image in the Frame Editor's grid. You can draw an image directly in the Frame Editor window, or you can paste one in from the SketchPad, which I will describe shortly.

Frame Display

Once you finish drawing or editing an image in the Frame Editor, you insert it into one of the small frames in the Frame Display window at the top of the screen (see Figure 2). The size of the frames corresponds to the grid size you selected earlier (32 by 32, 48 by 48, or 64 by 64 dots). The smaller the frame size, the more frames available for your animation strip, or "film clip"—181 frames for the 32-dot size, 82 for the 48-dot size, and 47 for the 64-dot size on a 128K Mac.

When you select a frame by clicking on it, an enlarged version of the contents of that frame appears in the Frame Editor window. To create an animation sequence, you can copy a frame, paste the copy into the next frame in the sequence, modify that frame in the Frame Editor window, copy it and paste the copy into the next frame, and so on until you finish your film clip.

Animation Window

As your work progresses, your film clip is constantly played in the Animation window—unless you find it enervating to watch the same animated sequence hundreds of times in a row, in which case you can close the window. You can resize the Animation window by dragging its size box. When you enlarge the window, however, the dots that make up the image be-

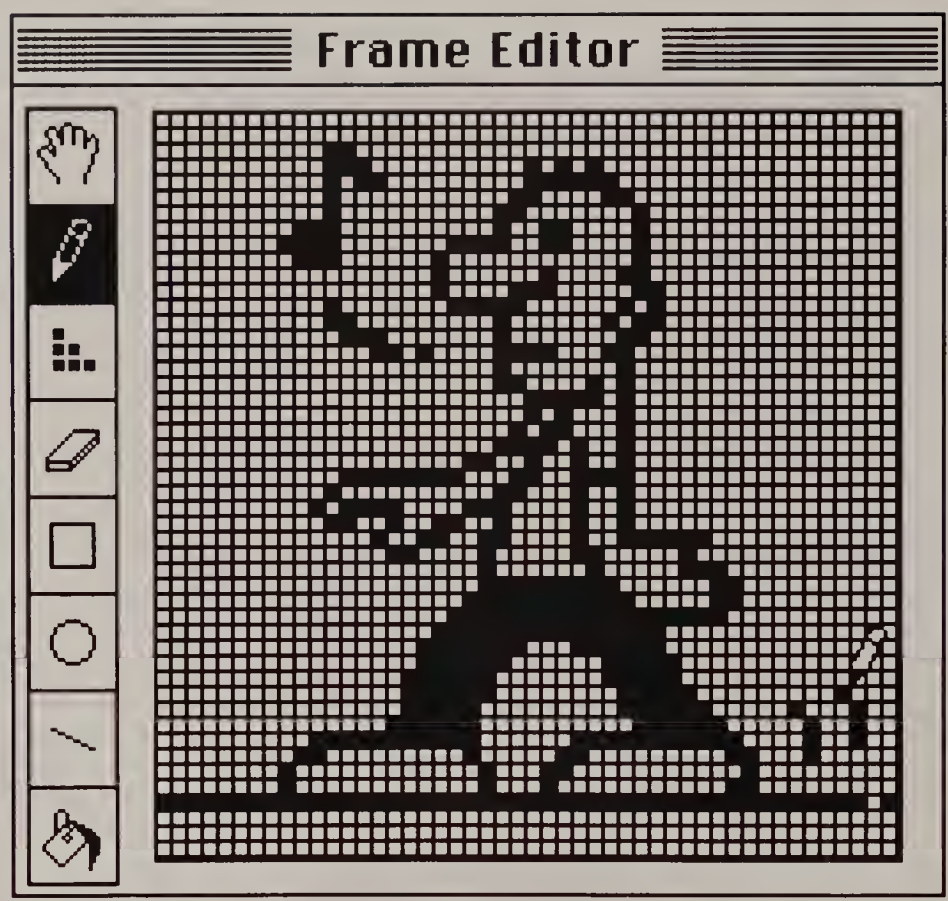


Figure 1
The Frame Editor is where you'll do most of your work in Animation Toolkit. *You can draw an image in the Frame Editor's grid or paste in a* MacPaint *drawing.*

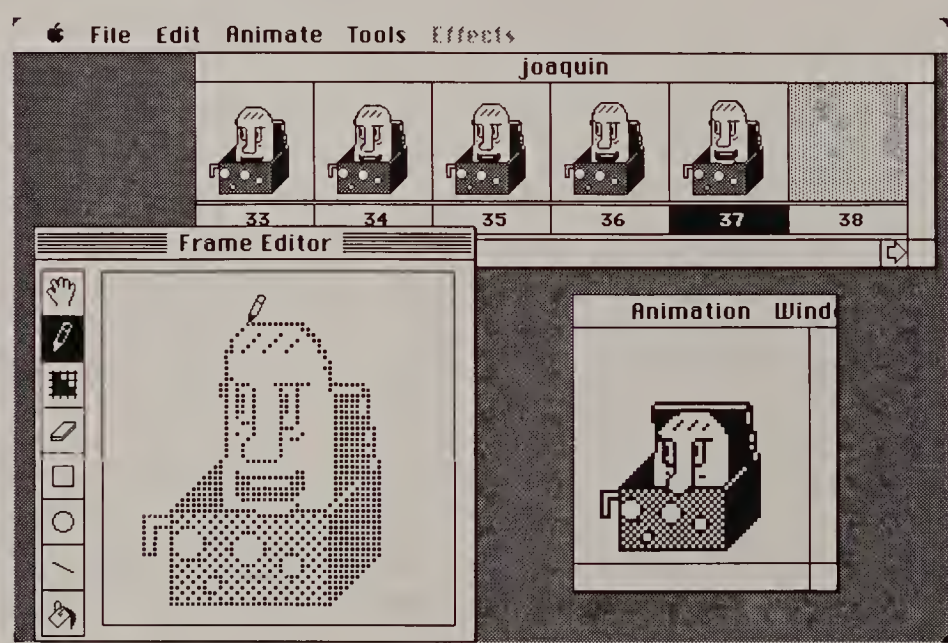


Figure 2
The Frame Display window shows a sequence of frames, much like a strip of movie film. Clicking on a frame allows you to edit that frame's contents in the Frame Editor window.

come larger, making the image look coarse and blocky. In addition, the larger you make the Animation window, the slower your film clip runs.

SketchPad

The SketchPad window, which you select from the Tools menu, gives you a number of options for transferring images to the Frame Editor. You can draw an image directly in the SketchPad window, without the constraints of the Frame Editor's grid, and then paste it into the Frame Editor window. Or you can copy *MacPaint* images from the Scrapbook into the SketchPad and then into the Frame Editor. Having access to the Scrapbook gives you a good deal of flexibility, since you can paste in your own *MacPaint* drawings, clip art images, or even digitized images. If you copy a large image, quite a bit of detail will be lost because of the small size of *Animation Toolkit*'s frames (see Figure 3), but the feature is handy nonetheless.

The SketchPad also lets you select a frame-sized portion of an image and transfer it to the Frame Editor (see Figure 4). You make the transfer by clicking on the select box—the topmost tool on the SketchPad's tool palette—and then clicking on the camera icon. You can also combine the select box with the options in the Effects menu to skew or distort a picture in the SketchPad.

More Tools

The final window, Make-A-Scene, which you also select from the Tools menu, enables you to set the first and last frames and the speed of an animation sequence and determine the direction in which the animation will play (see Figure 5). You can also set these specifications with the Animate menu, if you prefer menus to windows.

Other menu options allow you to insert a frame anywhere in a film clip or delete a frame without leaving a gap in the sequence; frames are moved over to accommodate the added or deleted frame. The Edit menu also contains the blessed Undo command, which is frequently used by people who draw with *MacPaint*.

An Ann Arbor Softworks spokesperson told me that an advanced version of *Animation Toolkit No. 1* featuring limited sound capabilities is being developed, as is *Animation Toolkit No. 2, The Stage,* which will allow you to create backgrounds and move characters in paths across the screen.

A free upgrade to *Animation Toolkit No. 1* is also available. If you send a blank disk to Ann Arbor Softworks, the company will add a handy application and return the disk to you. Included in the advanced version of *Animation Toolkit,* the application, called Font Converter, allows you to transfer *Animation Toolkit* film clips directly into programs written in BASIC, Pascal, FORTH, C, or any language that handles fonts. Since Font Converter records an animation sequence as a font file, treating each frame as a separate character, you can use Apple's Font Mover utility to transfer the animation into a program's System file as you would a font. You can then add commands to your program that loop to the same point and print one image on top of another, recreating your animation. Since *MacPaint* pictures can be copied into *Animation Toolkit,* Font Converter gives programmers a way, albeit roundabout, to place *MacPaint* artwork in programs

Although *Animation Toolkit No. 1* is limited in scope, I would recommend the program for people who are interested in creating simple animation sequences with a minimum of effort. The program is easy to use, and you can find yourself whiling away many an hour creating your own cartoons. As I was making a film clip the other day, someone came up to me and said, "That looks like a nice little program, but when you get right down to it, what can you do with it?" The answer is simple: you can have fun. □

Erfert Nielson is an Assistant Editor of Macworld.

Animation Toolkit No. 1
Ann Arbor Softworks
308 ½ S. State St.
Ann Arbor, MI 48103
313/996-3838
List price: $49.95

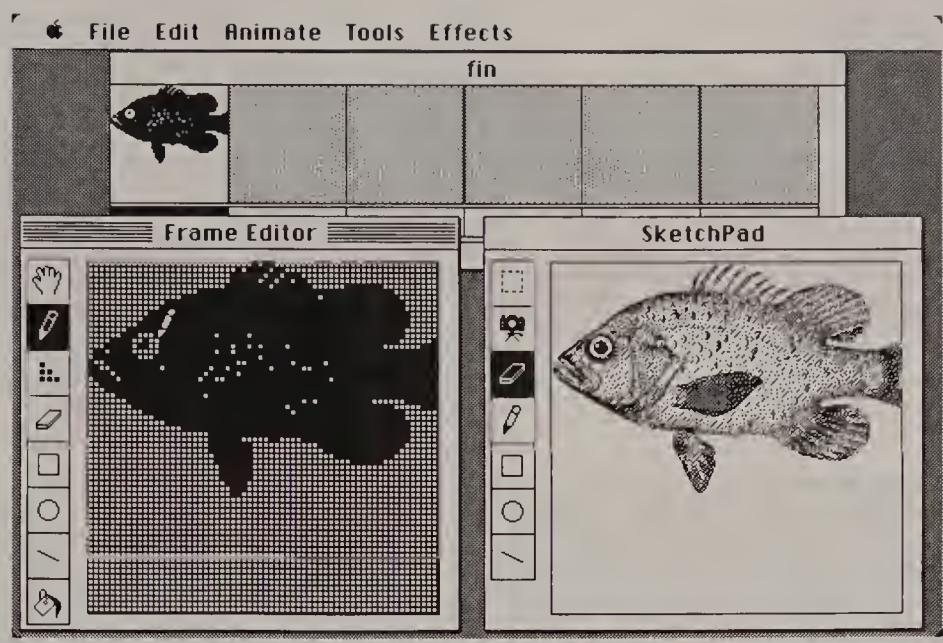


Figure 3
You can paste a MacPaint *drawing from the Scrapbook into the SketchPad and then into the Frame Editor. If the* MacPaint *image is too large to fit into the SketchPad, a dialog box asks if you want to trim part of the image or shrink it to fit.*

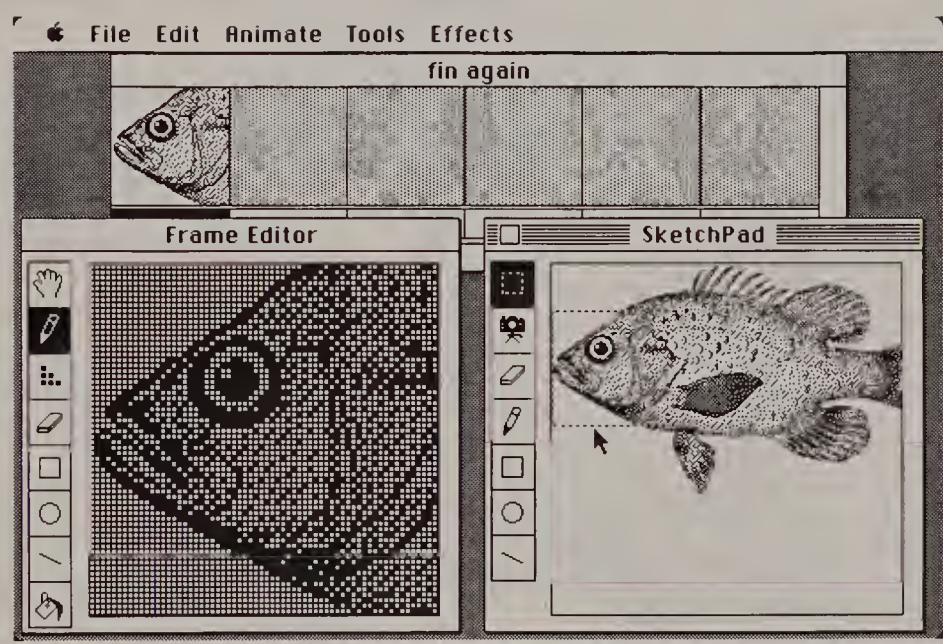


Figure 4
The SketchPad's select box captures an image the size of a frame; clicking the camera icon transfers the image to the Frame Editor. Using the select box in this way allows you to retain an image's detail.

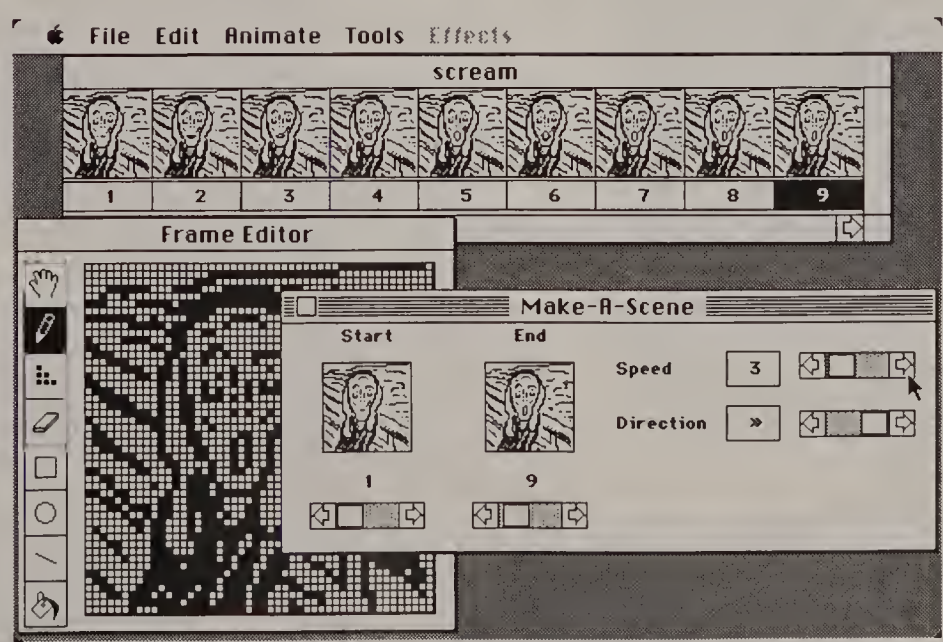


Figure 5
The Make-A-Scene window lets you select the first and last frames of a film clip and set the speed and direction of the playback using scroll bars.

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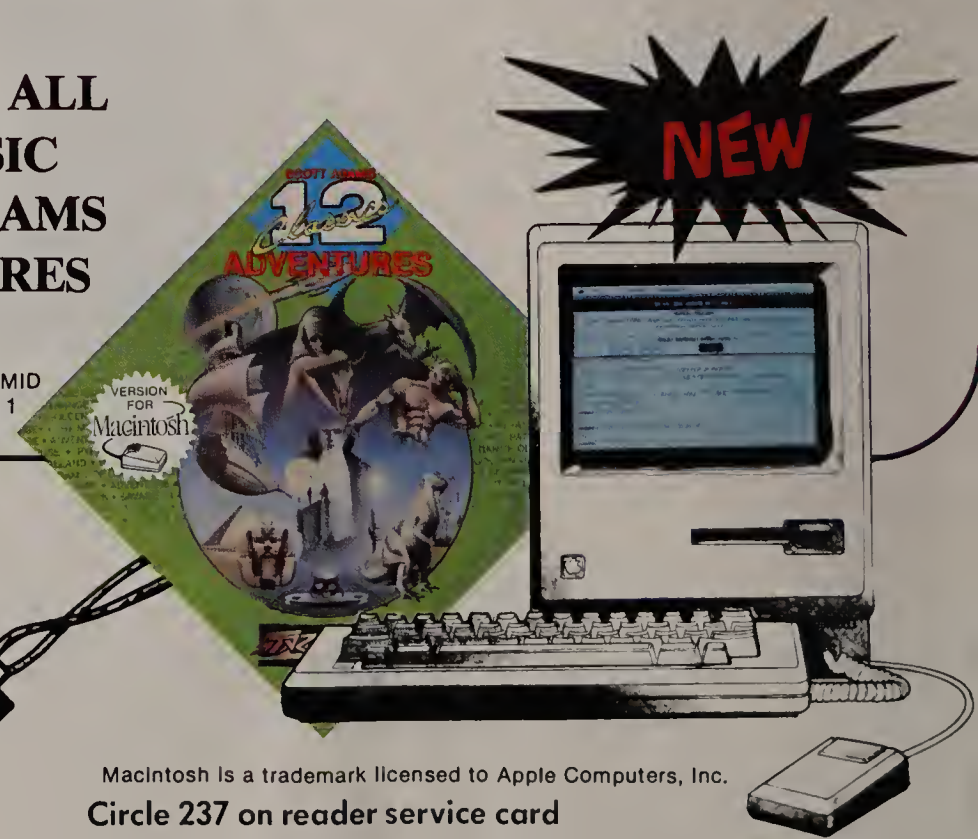

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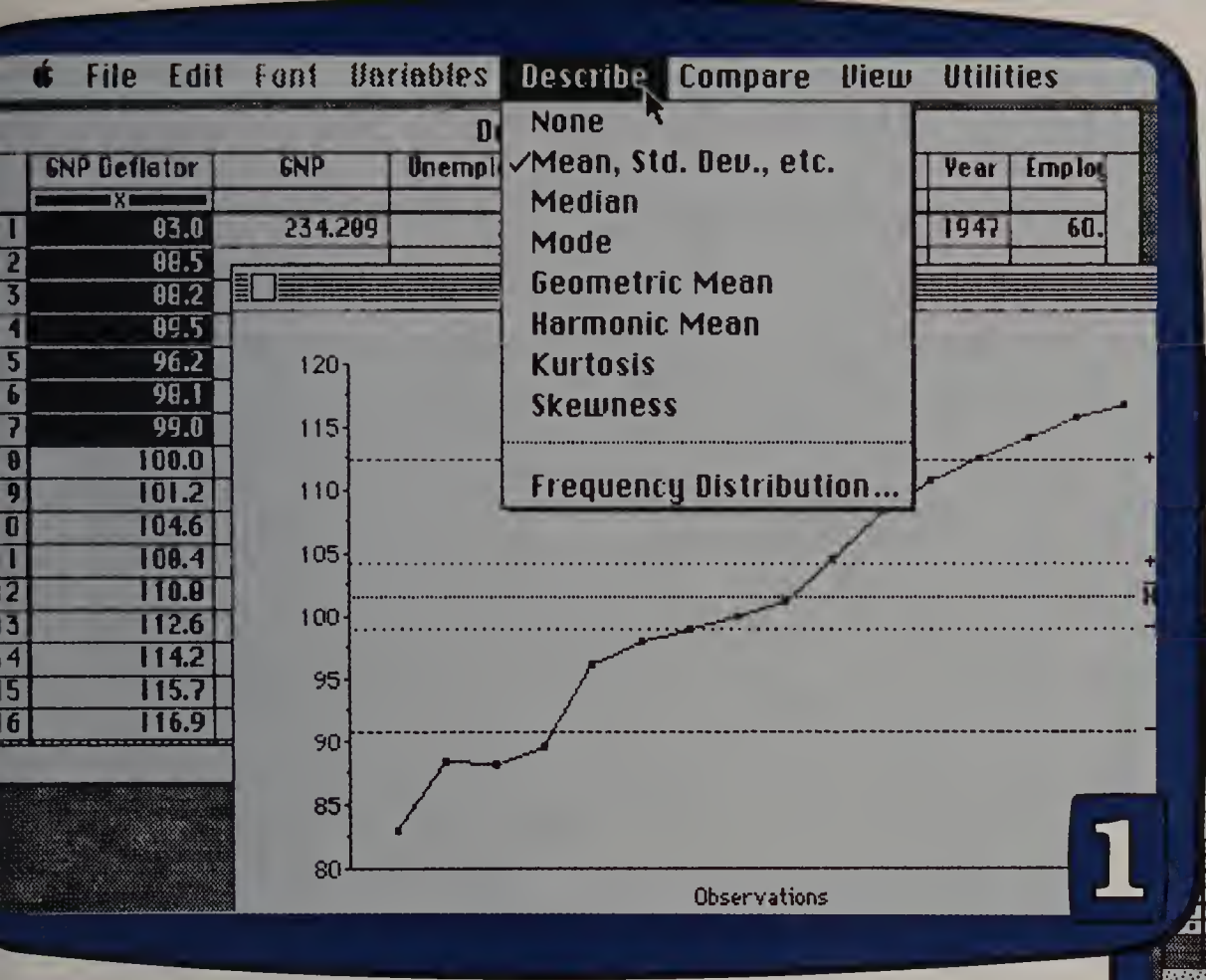

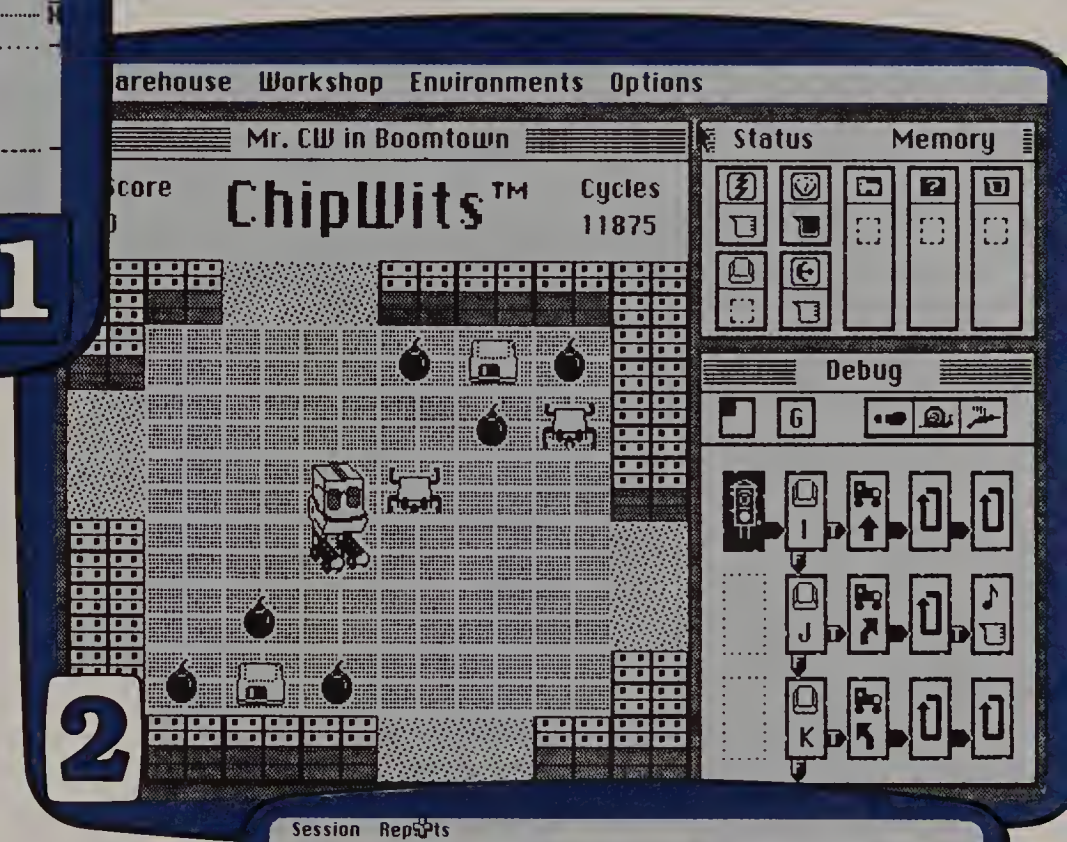

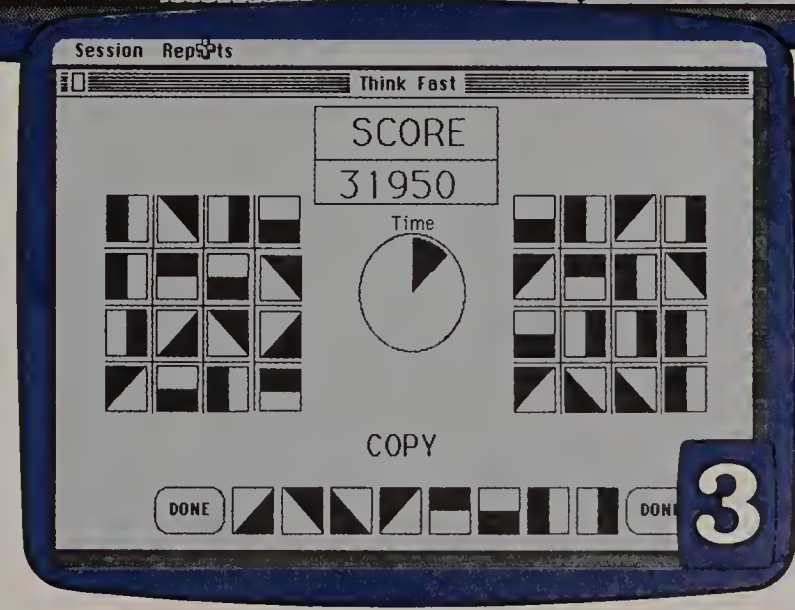

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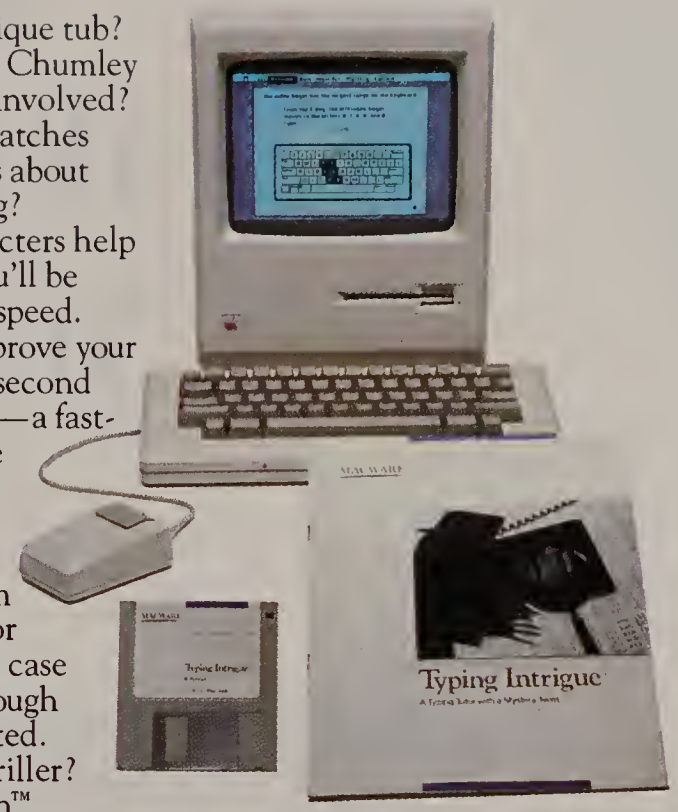

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Making Sense of Your Dollars

Keith Thompson

For home and business, Dollars and Sense takes the drudgery out of money management

If your road to tax-time terror is paved with good intentions, Dollars and Sense *for the Macintosh can serve as a powerful incentive to keep your financial affairs organized. You can use* Dollars and Sense *to track income and expenses and to create graphs that show how actual income and expenses compare to budgets set up earlier in the year.*

If you are tired of maintaining file folders full of financial records, paying an accountant to put your records in order, or trying to set up a chart of accounts in a spreadsheet program, *Dollars and Sense* may be the program you need.

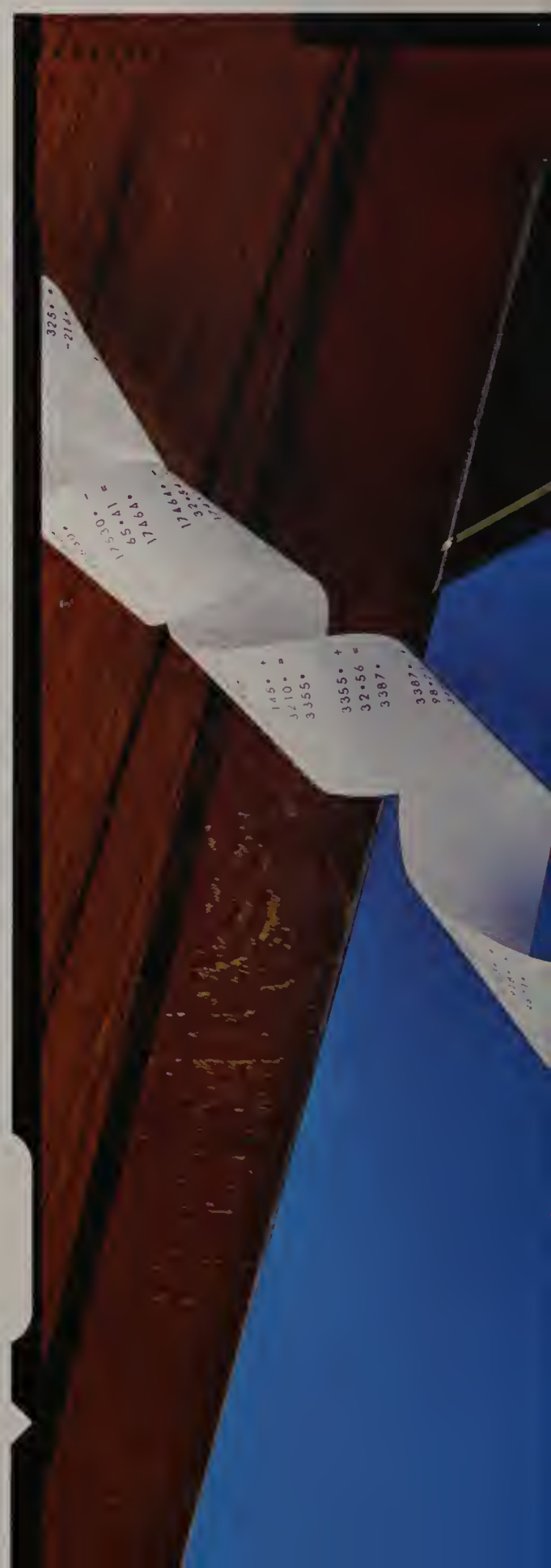
Employing the double-entry bookkeeping technique, *Dollars and Sense* balances income with expenses. A credit to one account is a debit from another account, so each transaction requires modifications to at least two accounts.

The advantage of *Dollars and Sense* is that you have to make entries only once. After you designate which accounts are affected by income or an expense, the program automatically credits or debits the amount in the appropriate accounts. *Dollars and Sense* also produces graphs and reports to represent visually your financial status or projections.

Chart of Accounts

When you open *Dollars and Sense,* eight menu titles appear in the menu bar. Before you can do any work, you must set up a chart of accounts. This procedure involves defining every category of income and expense you have, listing assets and liabilities, and detailing your checking accounts.

To simplify matters *Dollars and Sense* contains three built-in charts of accounts: business, household, and tax preparation (see Figure 1). Starting from one of these prescribed charts, new account categories can be added or irrelevant accounts deleted to suit your individual situation. If you



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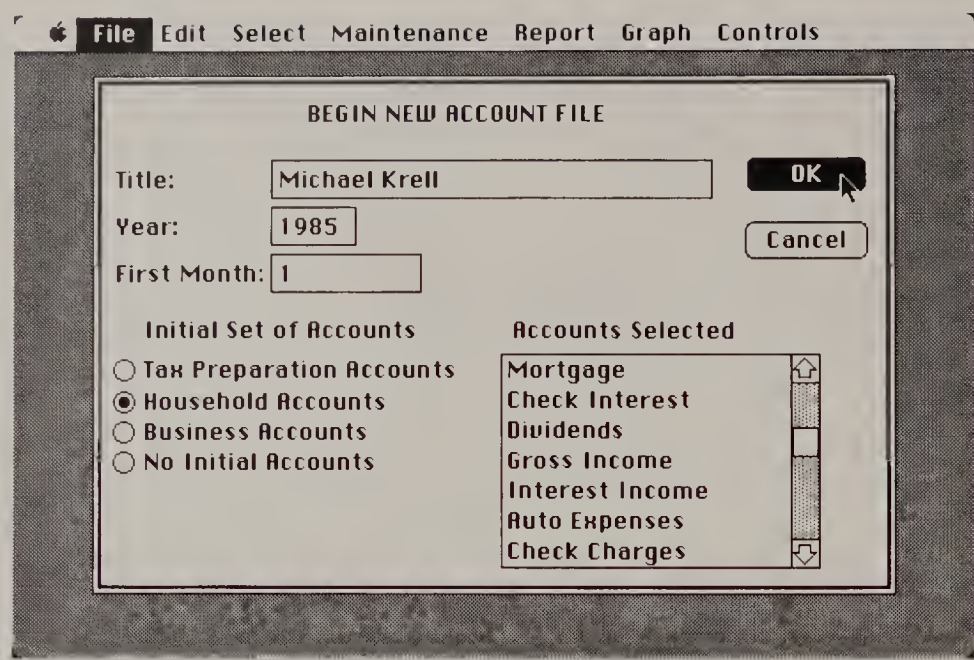
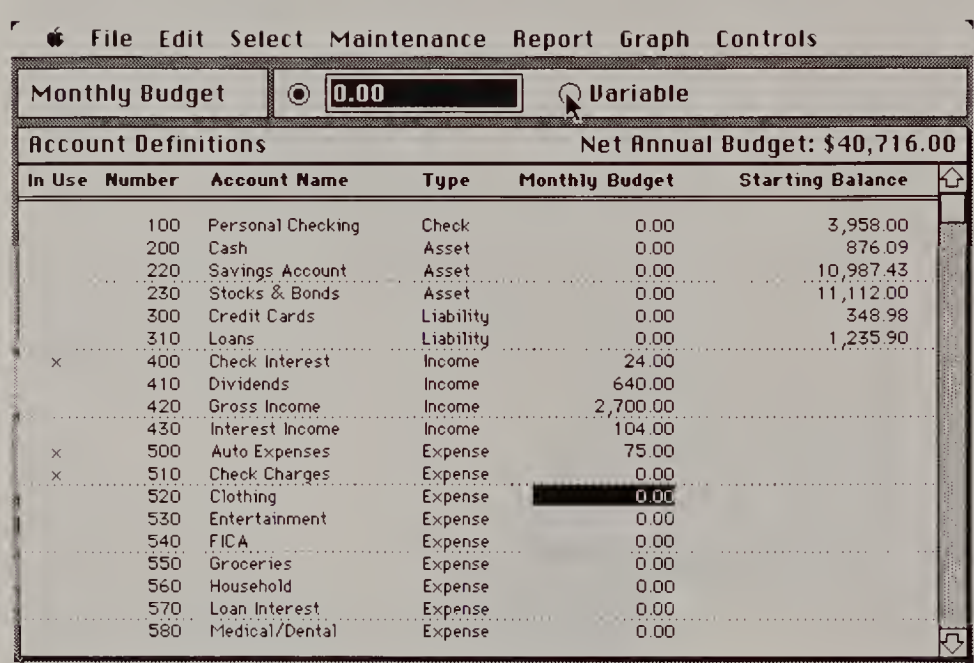
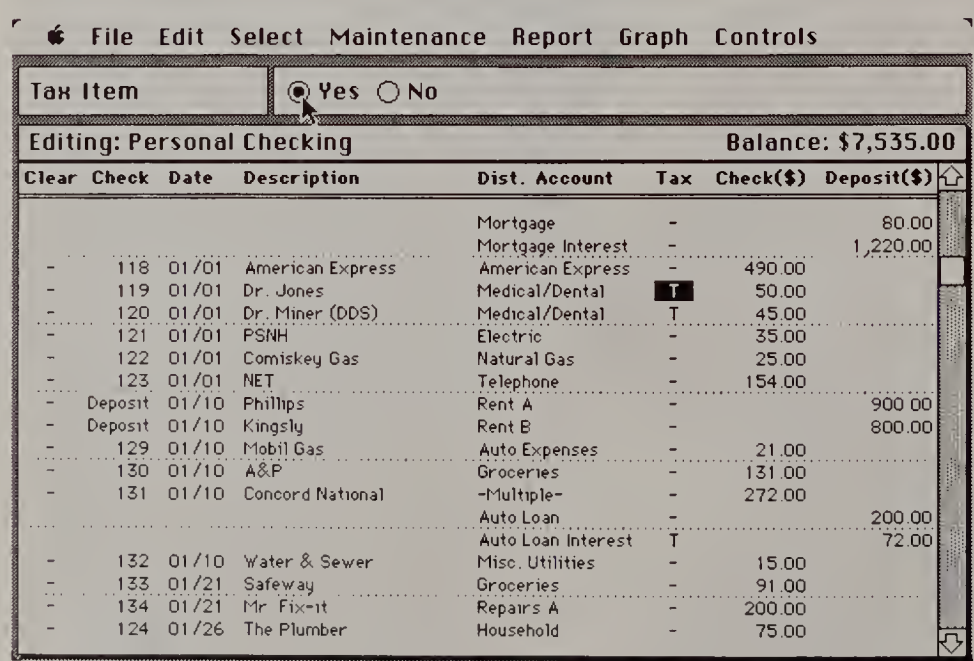


Figure 1
Dollars and Sense *has three built-in charts of accounts: tax preparation, household, and business. The Accounts Selected box displays account categories.*



In Use	Number	Account Name	Type	Monthly Budget	Starting Balance
	100	Personal Checking	Check	0.00	3,958.00
	200	Cash	Asset	0.00	876.09
	220	Savings Account	Asset	0.00	10,987.43
	230	Stocks & Bonds	Asset	0.00	11,112.00
	300	Credit Cards	Liability	0.00	348.98
	310	Loans	Liability	0.00	1,235.90
×	400	Check Interest	Income	24.00	
	410	Dividends	Income	640.00	
	420	Gross Income	Income	2,700.00	
	430	Interest Income	Income	104.00	
×	500	Auto Expenses	Expense	75.00	
×	510	Check Charges	Expense	0.00	
	520	Clothing	Expense	0.00	
	530	Entertainment	Expense	0.00	
	540	FICA	Expense	0.00	
	550	Groceries	Expense	0.00	
	560	Household	Expense	0.00	
	570	Loan Interest	Expense	0.00	
	580	Medical/Dental	Expense	0.00	

Figure 2
When you set up an account, you can enter a fixed or variable amount for each month. You designate each account as one of five types.



Clear	Check	Date	Description	Dist. Account	Tax	Check($)	Deposit($)
				Mortgage	-		80.00
				Mortgage Interest	-		1,220.00
-	118	01/01	American Express	American Express	-	490.00	
-	119	01/01	Dr. Jones	Medical/Dental	T	50.00	
-	120	01/01	Dr. Miner (DDS)	Medical/Dental	T	45.00	
-	121	01/01	PSNH	Electric	-	35.00	
-	122	01/01	Comiskey Gas	Natural Gas	-	25.00	
-	123	01/01	NET	Telephone	-	154.00	
-	Deposit	01/10	Phillips	Rent A	-		900.00
-	Deposit	01/10	Kingsly	Rent B	-		800.00
-	129	01/10	Mobil Gas	Auto Expenses	-	21.00	
-	130	01/10	A&P	Groceries	-	131.00	
-	131	01/10	Concord National	-Multiple-	-	272.00	
				Auto Loan	-		200.00
				Auto Loan Interest	T		72.00
-	132	01/10	Water & Sewer	Misc. Utilities	-	15.00	
-	133	01/21	Safeway	Groceries	-	91.00	
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Figure 3
All transactions are entered by account. Checks are debited from the base account called Personal Checking and credited to the destination accounts.

choose, you can customize a chart of accounts. Careful preparation is crucial, as future entries and reporting functions depend on the accuracy of your chart of accounts. You can easily change your chart of accounts during the year, provided that the accounts have no balance.

When you set up an account, the program asks for a monthly budget. You can enter a fixed amount per month or enter an amount separately for each month (see Figure 2). For example, quarterly insurance payments can be entered only in the months when they are due. Each account is designated as one of five types: asset, check, expense, income, and liability. The Net Annual Budget in the upper-right portion of the screen changes as income and expense figures are entered. After all the accounts are entered, the net budget should be a positive number. A negative number means that, like the federal government, you have a deficit.

Through the year you know how much to spend on each item in order to end the year in the black. You can graph projected against actual budgets to see whether the financial year is going according to plan.

Posting Entries

You post transactions into *Dollars and Sense* weekly or monthly. Most entries are made through your regular checking account. The time you spend posting is limited to the time it takes to record checks and allocate them to accounts. First you open your checking account by choosing the New Transaction option on the Select menu. Then you enter the checks with their number, date, and payee. *Dollars and Sense* then asks to which account or accounts each expense or deposit should be attributed. A check written to the bank for an auto loan payment, for example, is divided between the principal and interest paid. The interest portion is coded as a tax-relevant account. Deposits and miscellaneous transactions are entered similarly and assigned to respective accounts (see Figure 3).

Special Features

An advantage *Dollars and Sense* has in common with electronic spreadsheets is the ability to experiment with "what if" questions such as, What if I got a raise in August? Could I afford a new BMW? When you enter the numbers and observe the annual budget total, you get an answer instantly. You don't have to save your calculations when you're finished dreaming unless, of course, you decide to buy the car.

Dollars and Sense has modules that help you reconcile bank statements and enable you to write checks with a printer (see Figure 4). Payments can be entered individually or stored in an Automatic Transaction File that can be called to the desktop when regular payments are made. After previewing the date and amount and posting payments, you can print the checks on continuous-form checks (a list of suppliers is in the program documentation). Unless you make several monthly payments at one time, however, writing checks manually may be more practical.

Monogram also markets a program called *Forecast* for figuring out tax liabilities. The program works with or without *Dollars and Sense,* but you can designate *Dollars and Sense* categories that are linked to *Forecast* categories. As you enter transactions in *Dollars and Sense* during the year, you can extract the relevant categories to determine your tax liabilities in *Forecast*. Among other things, *Forecast* lets you create financial scenarios, showing you instantly how a transaction will affect the year's taxes. You can experiment with alternative tax strategies, such as income averaging, to make you a better-informed taxpayer.

Displaying and Printing Reports

The strength of any accounting program lies in its ability to generate useful reports. The *Dollars and Sense* Report menu includes seven report format options: transaction report, account year-to-date summary, monthly budget totals, monthly actual totals, income statement, balance sheet, and cash flow (see Figure 5).

The program allows you to summon each account by itself or combine similar accounts to customize reports. By specifying a range of dates, for example, you can

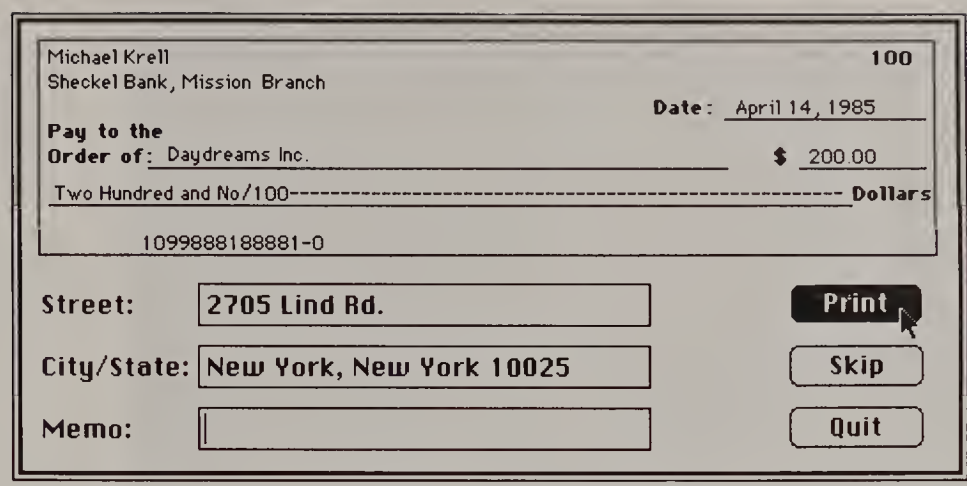

Figure 4
Dollars and Sense *allows you to write checks with the Imagewriter. This feature is useful if you have several monthly payments to make at one time.*

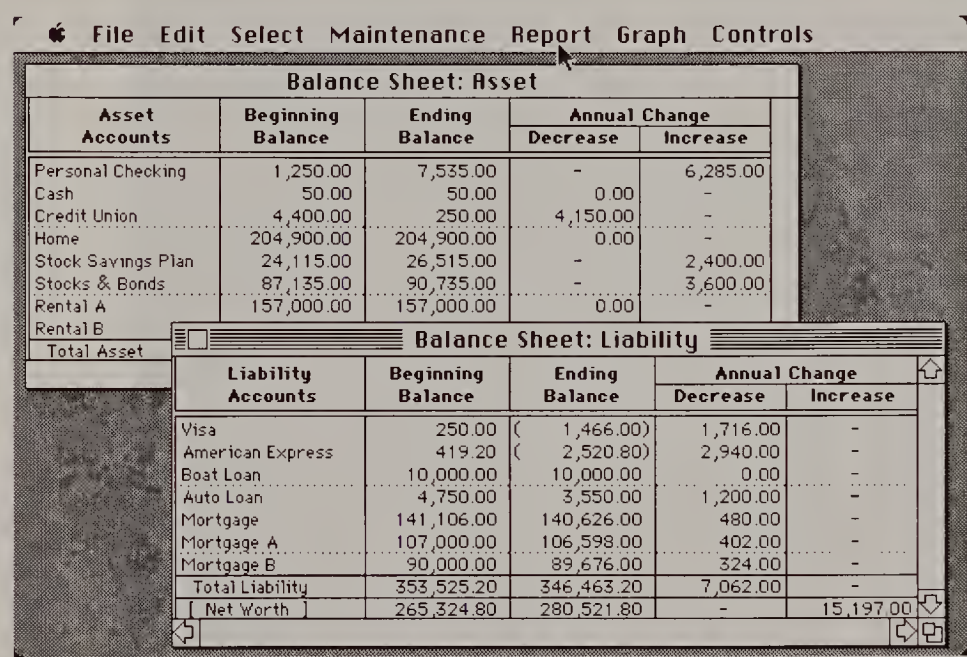

Figure 5
At any point you can generate a balance sheet for a comprehensive view of how your finances have changed during the year.

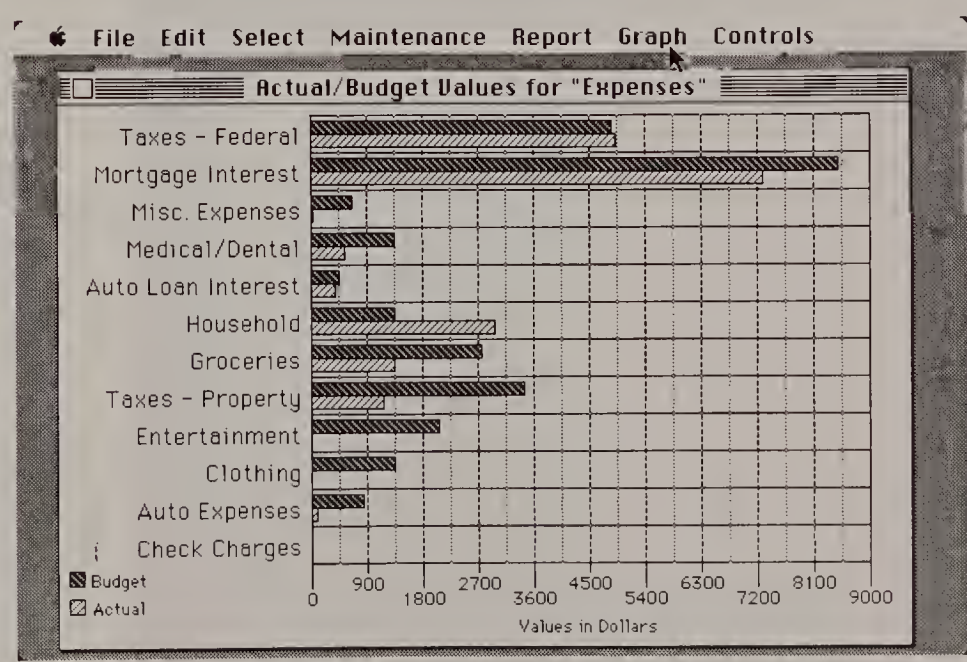

Figure 6
Expenses can be converted to a bar graph to show how actual expenses compare with your budget.

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view a slice of a year's transactions. You also have the option of choosing a report format after specifying whether you want to limit the report to specific tax items or select accounts, deposits, a range of check numbers, or even a range of dollar amounts. Once you select a report format, you can choose to display or print summary, detailed, or compressed reports.

Graphing Your Finances

The essence of the Macintosh is its graphics. *Dollars and Sense* exploits this capability by offering six graph formats to help you understand your finances. At the end of each session, for instance, a bar chart can be drawn to show, by percentage, how your actual expenses match your budget. Accounts can be singled out and graphed, or related accounts can be grouped together. You can also display actual versus budgeted expenses in dollars instead of percentage (see Figure 6). A graph called Account Contribution to Totals draws two pie charts—one of actual expenses and the other of your budget—showing the percentages of contributions to an entire account. The Monthly Actuals-Budgets and Monthly Net Income bar graphs include a trend line calculated and superimposed over bars representing actual dollar amounts. The Monthly Net Worth option creates a bar graph showing assets less liabilities. All reports and graphs can be shown on the screen or printed.

A Program Guide

The *Dollars and Sense* documentation is divided into five sections, including an introduction to the program. The First-Time Tutorial and Sample Applications sections take you through the basics of the program before suggesting how the program can be customized for specific applications. The Working Reference Guide is well documented and indexed. The final section of the manual, Getting Results, shows samples of report formats. Oddly enough, the illustrated samples are not explained.

Dollars and Sense is copy-protected. However, you receive a backup disk at no cost when you send in your warranty card.

Small Change

With so much to like about *Dollars and Sense,* what are its shortcomings? Unfortunately, information from the program can't be transferred to other programs, such as *Multiplan* or *MacWrite.* This limitation is significant for people who want to paste a graph or a report into a letter or who want to use a full-featured spreadsheet to manipulate data. Another shortcoming is that you can't specify a range of information to put in a report (such as all checks greater than number 200). Also, you can't save a report on disk. If you want to keep a record of the report, you have to print it and keep a paper copy.

One feature the program lacks is a method by which you can keep a dollar subtotal of transactions for a particular session. And an explanation of how to start using the program in midyear would also be helpful. Where should opening balances come from? How can accounts be set up for only part of the year? The fictitious account that the documentation refers to as an example is not contained on the program disk. I would have been more confident about using *Dollars and Sense* if I could have experimented with a dummy account at the outset.

The time I spent using *Dollars and Sense* has paid off. After a few hours of experimenting, I entered several months of my own transactions. The program's reports and graphs gave me new information that I never would have taken the time to compute manually. I learned enough to determine whether I should itemize my tax deductions next year. Before too much of the year is gone, it would be worth your while to consider adding *Dollars and Sense* to your software library. □

Keith Thompson is a free-lance writer based in Lexington, Massachusetts, and the author of The Macintosh Office, *forthcoming from Ashton-Tate.*

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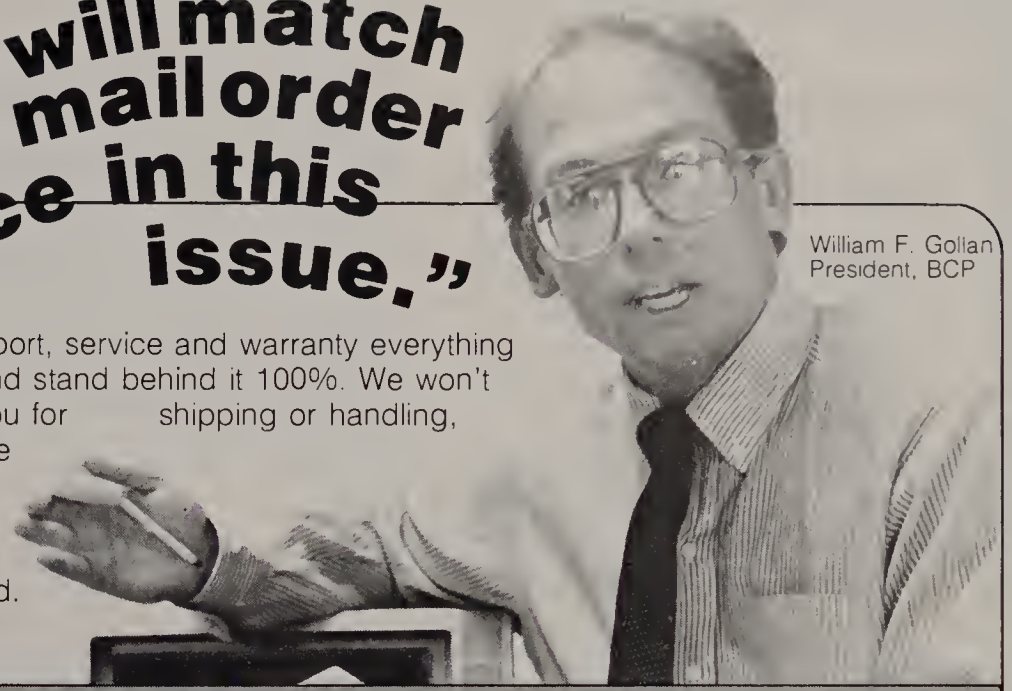

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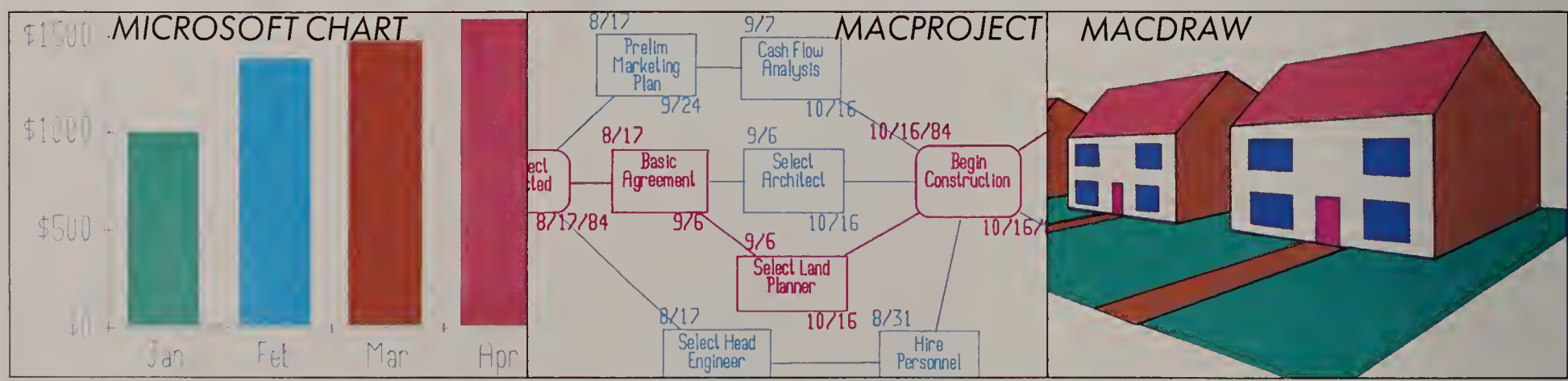

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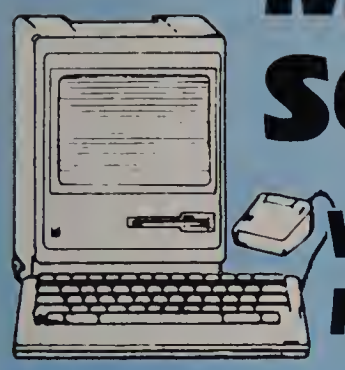

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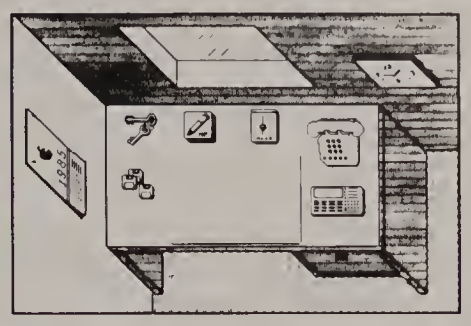

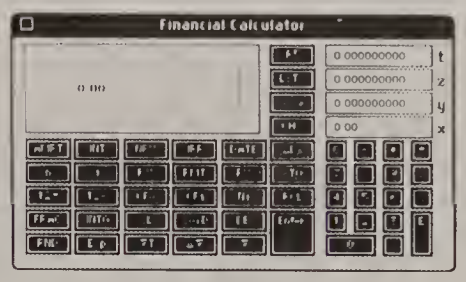

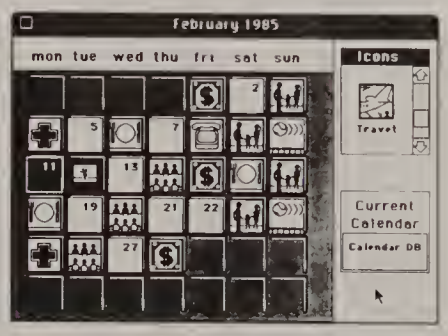

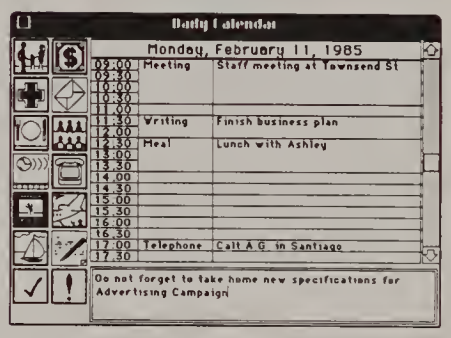

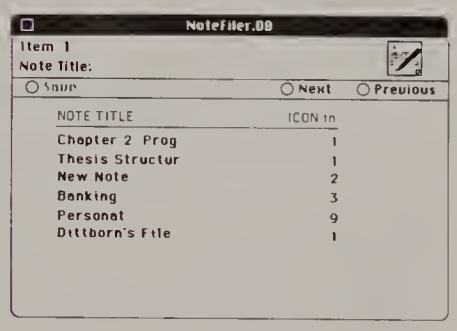

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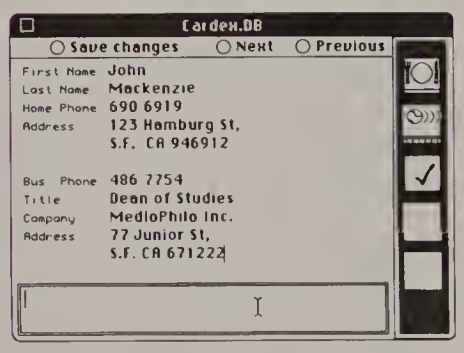

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We work in The Macintosh Office.

Control Room

This office is real. You can order it now.* It is brought to you by Odesta Helix. The data-based system solution for people who take care of business.

What is Odesta Helix™?

Helix is a data-based information management & decision support system. It provides a data-based "pool" into which you may put all kinds of information ---text, numbers, pictures, or ASCII data-communications (via MacTerminal™) ---without having to know a programming language or battle with command codes, modes, or imposed structure.

A System Solution---Once & For All.

Once information is entered, it is then just as easy to examine from any angle, and use in any application. From reports, lists, and mail merge letters to analyses and interactive searches. All within Helix. And all without having to learn a query language, spread-sheet formulae, report formatting or data-base algebra.

Bridging the Gap & Closing the Circle.

If you manage resources or information, you are probably already asking the next question:

"Since Helix lets us build applications on top of a flexible data-based foundation, can we share that information within our business or department?"

Yes. Now you can have direct access to the real operational pulse of your organization---its contracts, orders, shipments, research or inventory. Information that you can easily query and evaluate with visual tools so innovative that they should be seen rather than described. That let you schedule projects and allocate resources based on historical data---and then re-formulate tactics and plans as conditions change.

And that let you close the circle by embedding your own flags in the system to give direction to others, and to manage by exception rather than rule.

Control Room

Odesta Corp.
3186 Doolittle Dr., Northbrook, IL 60062

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☐ Please have a Salesperson call

Name _____

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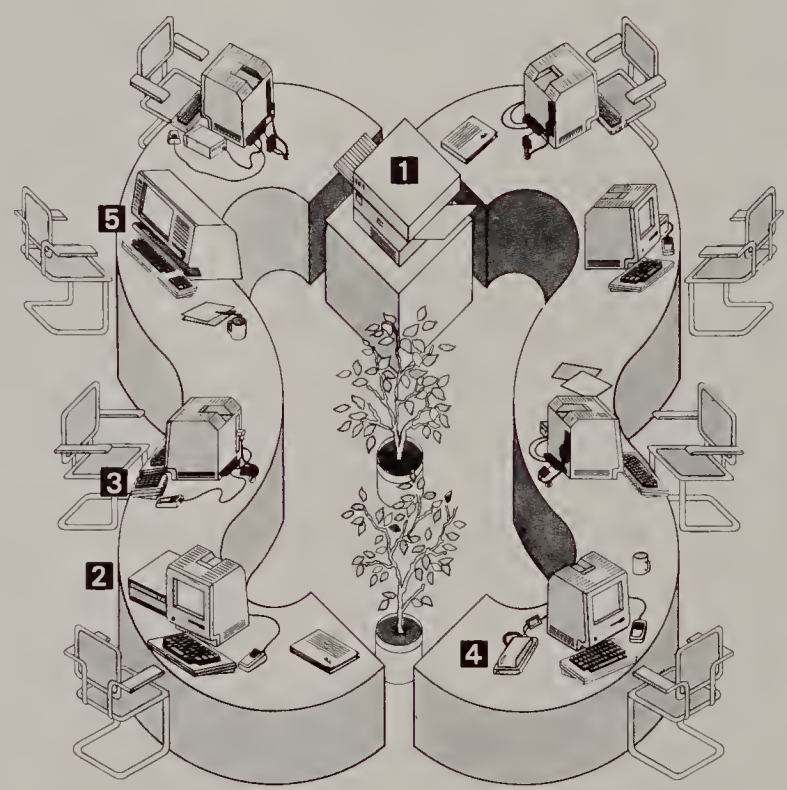
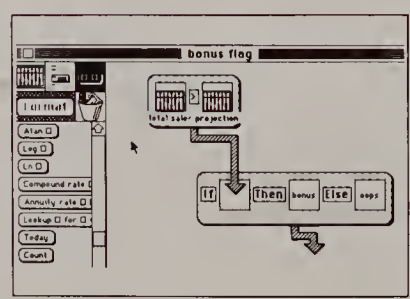
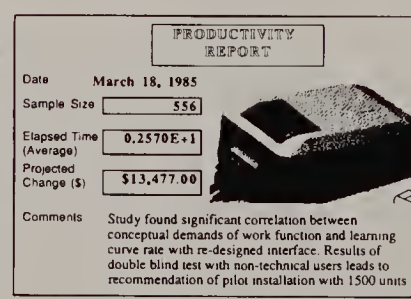




One of the acclaimed innovations of Helix is the way you can visually manipulate powerful concepts and calculations almost as easily as you can say them. A manager may now build or specify applications using his or her own expertise — instead of having to learn programming or rely on a programmer.



Since numbers, words, and pictures communicate more meaning when seen in context, Helix lets you work with them in any combination. Illustrated price lists, personnel documentation, training materials, competitive analysis research...

How Real is Real?

Visit a dealer who can demo Helix and The Macintosh™ Office. Take a seat and make it real for yourself. Or call us at 1-800-323-5423 (Illinois: 1-312-498-5615) or send us the coupon to get a free copy of our "Control Room" brochure, including samples of actual LaserWriter output.

* Available at any Businessland™ Center or Moore Business Center. For the name of other Helix dealers near you, call Softsel at 1-800-556-2283.

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Room With a View

Ask someone about Helix who is using it, and you will understand why it has been a best selling business program since it began shipping January 11, 1985. Then combine its dynamic flexibility and personal control with the concept of shared resources, and you may decide that our version of The Macintosh Office warrants your serious consideration.

Interior Design

As a manager, you practice the art of hitting a moving target. The success of your aim depends on knowing where you stand. That is specifically what Odesta Helix is designed to provide, and what The Macintosh Office offers as a cost-effective vehicle. Existing mainframes, minis, and personal computers are either too unresponsive, inflexible, or limited to provide you with the hour to hour, day by day answers you require. And since these two types of systems are so different, and serve such different sets of needs, we suggest that parallel installations will develop naturally, and complement one another.

Knobs & Buttons

1 Odesta Helix drives the LaserWriter with many Macintoshes at once, producing publication-ready reports, documents with numbers, text, and picture data, and irresistible mail-merge letters. 2 With the Corvus OmniDrive™ and OmniTalk,™ Helix uses shared mass storage and supports sequentially shared files. 3 By fully supporting the keypad, Helix makes numeric data entry completely independent of keyboard and mouse. 4 Modem based data-communication for remote Helix file transfers, as well as for ASCII file Dump & Load to other programs and machines. 5 Helix supports the Macintosh XL (and Lisa™ under MacWorks™), using its full screen and running unfettered on its hard disk (as well as such 3rd party hard disks as the Corvus,™ HyperDrive,™ and Quark™).

ODESTA HELIX™

Circle 13 on reader service card

Macware News

The latest developments in Macintosh software, hardware, and accessories

Edited by Erfert Nielson

Macware News *announces new Macintosh products. Those listed here are available now or will be in the near future. Unless otherwise indicated, programs run on a 128K Macintosh.*

A note to developers: because of limited editorial space and a dramatic increase in the number of product announcements received at Macworld, *we are not able to publish every product description that is submitted to* Macware News. *We will list as many new products as space permits and attempt to represent a variety of categories. Also, please keep in mind that it takes at least three months from the time information is received for it to appear in* Macware News.

Software

■ *Aldus Corp.*

616 First Ave. #400
Seattle, WA 98104
206/467-8165

PageMaker
A program that enables you to design and lay out pages containing text and graphics and print them on Apple's LaserWriter printer. With *PageMaker* you can produce newsletters, data sheets, manuals, proposals, presentations, and other small publishing jobs. You can combine *MacWrite* text with *MacPaint* or *MacDraw* graphics in a multicolumn format. *PageMaker* reads documents created with these programs directly from disk, so you don't have to transfer the documents to the Clipboard or the Scrapbook; *PageMaker* can also read files from other word processing, spreadsheet, or graphics programs by means of the Clipboard. The program allows you to insert horizontal, vertical, or diagonal rules. You can view facing pages, vary column widths (text is automatically formatted to fit the width you specify), place white letters on a gray or black background, make minor text corrections, and precisely align elements horizontally and vertically. Depending on the quality of output you require, you can use *PageMaker* with the Imagewriter printer, the LaserWriter, or an Allied Linotype typesetter. *PageMaker* requires a 512K Macintosh with an external disk drive or a Macintosh XL with a built-in hard disk. List price: $495.

■ *Axlon*

1287 Lawrence Station Rd.
Sunnyvale, CA 94089
408/747-1900

MacMatch
A game similar to Concentration. The object of *MacMatch* is to uncover and solve a puzzle by choosing matching pairs of pictures located under from 16 to 64 numbered squares. When you choose two matching pictures, the underlying puzzle segments are displayed; if you guess incorrectly, the pictures under the numbers are briefly displayed and then covered again. You can create your own puzzles from *MacPaint* drawings. The number of points you are awarded depends on how quickly you finish a game and on the number of hints you use. List price: $49.95.

Typing Avalanche
A typing tutor program with two games to help you practice the skills taught in the lessons. *Typing Avalanche* lets you use its lessons or design your own. Each lesson consists of a warm-up exercise, speed and accuracy exercises, and milestones to reach before continuing. Keys displayed on the screen are highlighted to help you keep your eyes on the screen rather than on the keyboard. The program's two arcade-style games, Avalanche and Jogger, help you develop speed and accuracy. In Avalanche you type displayed letters before they fall from the top of the screen to the bottom; the program recognizes which letters you miss most often and displays more of those letters. Jogger tests how quickly you type a word as it "jogs" across the screen. List price: $59.95.

■ *DeskTop Software*

244 Wall St.
Princeton, NJ 08540
609/924-7111

1stMerge
A data-entry and mail-merge program that enables you to insert information into *MacWrite* documents to create form letters and memos. You can use all *MacWrite* fonts and font styles, as well as merge graphs, charts, or *MacPaint* graphics into documents. *1stMerge* also allows you to print labels five across and print directly onto envelopes. Since *1stMerge* is compatible with DeskTop's *1stBase* database, data files can be exchanged between the two applications. List price: $95.

1stPort
A communications and data conversion program that allows the Macintosh to communicate with other personal computers, mainframes, and information

services such as The Source and CompuServe. Files sent to the Macintosh can be converted into a number of data formats, such as SYLK, DIF, flat ASCII, *1stBase* format, or Macintosh Clipboard format, for use with a variety of programs, including DeskTop's *1stBase* database. List price: $95.

■ *Expert Software Systems*

P.O. Box 2352
Melbourne, FL 32901
305/725-5614

MacGammon
A backgammon game with the Macintosh as your opponent. *MacGammon* always plays at the expert level, although novices can use the option of accepting or rejecting the results of a dice roll. You use the mouse to throw animated dice, move your playing pieces, and pick up the dice to indicate when a move is over. Other features include the ability to save a game in progress, a displayed record of up to ten players' scores, tournament scoring, offensive and defensive use of the doubling cube, and sound effects. List price: $49.95.

■ *Forethought*

1973 Landings Dr.
Mountain View, CA 94043
415/961-4720

FileMaker
A nonrelational database that allows you to create a variety of custom-designed reports that include text and graphics. The number of fields, records, and files is limited by disk space; you can view only one file at a time. The program's variable-length fields are indexed for rapid retrieval. Records can contain any combination of text, number, date, calculation, or summary fields. *FileMaker* allows any number of report layouts for each file. You can design one form for data entry, another for viewing the data with calculations and summaries, and others for printing reports or forms. *FileMaker* files can be printed on the LaserWriter printer. List price: $195.

■ *Great Wave Software*

P.O. Box 5847
Stanford, CA 94305
415/852-2280

ConcertWare
A program that allows you to compose, edit, play, and print out music on the Macintosh. *ConcertWare* consists of three parts: Music Writer, Instrument Maker, and Music Player. You use Music Writer to enter and edit notes for up to four voices. A scroll bar lets you move through the music file to enter notes. You can assign or change key signature, time signature, tempo, and volume anywhere in a piece. Instrument Maker lets you design the sound of your own instruments—including each one's envelope, which determines how notes are sustained or decay—by creating waveforms on the screen. You can test the sound of your instrument at any time by clicking on the keyboard at the bottom of the Instrument Maker window. *ConcertWare* comes with 34 predefined instruments, including violin, harpsichord, harmonica, saxophone, and piano. List price: $49.95.

■ *Haba Systems*

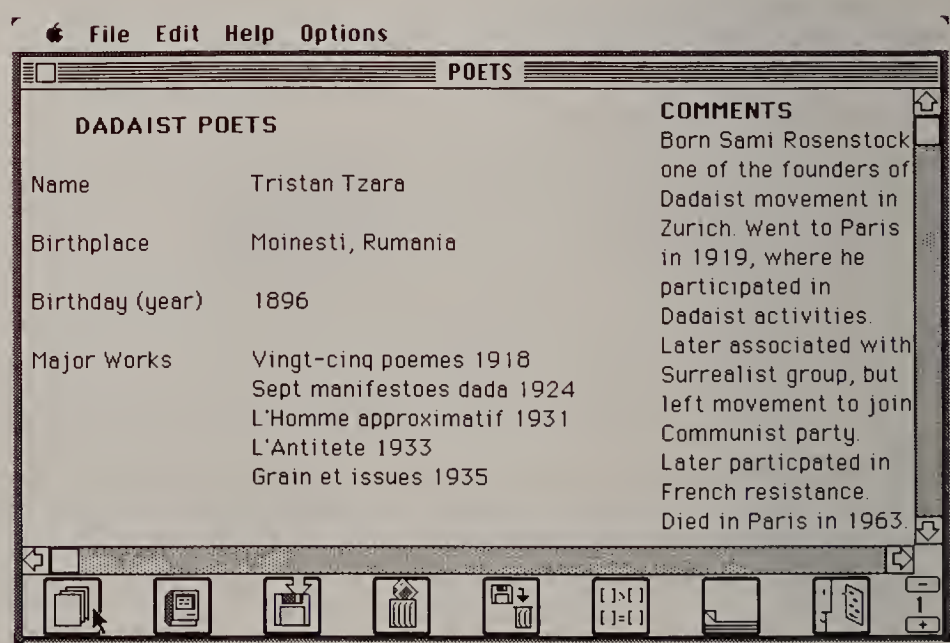
15154 Stagg St.
Van Nuys, CA 91405-1025
818/989-5822

Quartet
An integrated package that combines spreadsheet, database, graphics, and text-editing functions. *Quartet* lets you combine text, graphs, and data listings on the screen. You can then print reports containing this information without cutting and pasting information from separate applications. The program's 62-column by 999-row spreadsheet includes standard spreadsheet functions as well as financial functions such as date, net present value, internal rate of return, future value, standard deviation, and variance. Other spreadsheet features include range selection, split screen display, adjustable column widths, grid suppression, and the ability to paste in data or calculations. The program's database performs primary and secondary sorts; the text annotator, a limited word processor, includes word wrap and justification. *Quartet* also allows you to create line, pie, and bar graphs; the graphs change to reflect changes you make to the spreadsheet. List price: $199.95.

■ *Hayden Software*

600 Suffolk St.
Lowell, MA 01854
800/343-1218

Ensemble
An integrated program that includes the following capabilities: database management, report and form generation, graphing, word processing, and calculations. The database, which is the basis for all information storage in *Ensemble,* lets you process fixed or variable entries along with calculations, charts, tables, graphs, text, and pictures. You can store text, numbers, and graphics as separate or integrated files. File size is limited by disk space, and record size is limited by available memory. The program displays information in



Ensemble, Hayden Software

tabular format or as pie, bar, line, or scatter charts. You can create document formats using *Ensemble*'s graphics and its word processor. Information can be sorted on several keys and retrieved by criteria such as equal to, greater than, or less than. *Ensemble*'s calculation features include mathematical, comparative, and conditional functions. Files can be printed as reports, mailing labels, or other documents you create. Information from *MacWrite* or *MacPaint* files can be inserted into *Ensemble*. List price: $299.95.

■ *Heyden & Son*

247 S. 41st St.
Philadelphia, PA 19104
215/382-6673

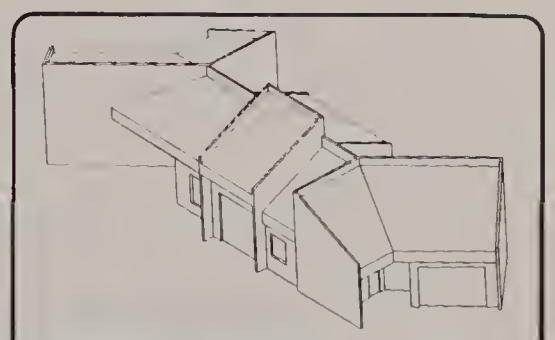
StatWorks
A general statistics program for economists, managers, physical scientists, students, and others who work with statistics. Data entry features include file transfer from mainframes, the ability to cut and paste information, sorting, data manipulation and transformation, and data recording within a range you specify. You choose statistical applications from a series of menus. General statistics functions include minimum, maximum, range, median, mean, standard error of mean, variance, standard deviation, coefficient of variations, skewness, and kurtosis. The Regression menu includes simple, polynomial, and multiple regressions, calculated with or without constants. The ANOVA menu includes one-way and two-way, balanced or unbalanced designs as well as nonparametric ANOVA tests. Plotting features include line plots, scatter plots, and histograms. Other features include decimal or scientific notation, a pseudo random number generator, and the ability to transfer data to and from other Macintosh applications. List price: $99.95.

■ *Intermatrix*

5547 Satsuma Ave.
North Hollywood, CA 91601
818/509-0474

MacDesk
A desktop organization program that includes voice or data telecommunications capabilities and time and phone management utilities. *MacDesk* provides 13 utilities that you can install as desk accessories in any program's Apple menu, allowing you to use them without quitting the program. *MacDesk*'s desktop organization functions include a calendar and appointment book through the year 2030, alarms for multiple appointments, a Week-at-a-Peek scheduler, a things-to-do list, bank account and credit card lists that give totals and balances, and a multifunction calculator that records calculations on "paper tape" that can be displayed or printed. The program lets you store personal information files in a set of displayed index cards; you can sort information contained in the cards and print it out as mailing labels, phone lists, or Rolodex cards.

MacDesk's communications software can be used with Hayes-compatible modems. It can also be used to automatically dial a standard telephone by means of the PhoneLink accessory included with the program. *MacDesk*'s telephone management features include the ability to place abbreviated phone lists on application disks, the option to log all incoming and outgoing calls, and the computation of telephone charges and applicable professional fees. You can enter notes



TEKALIKE

A Graphics Terminal for the Macintosh™

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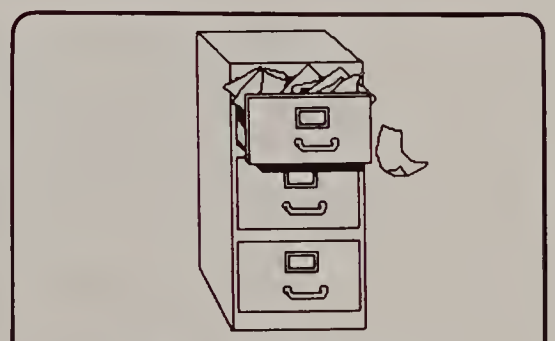

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The first library

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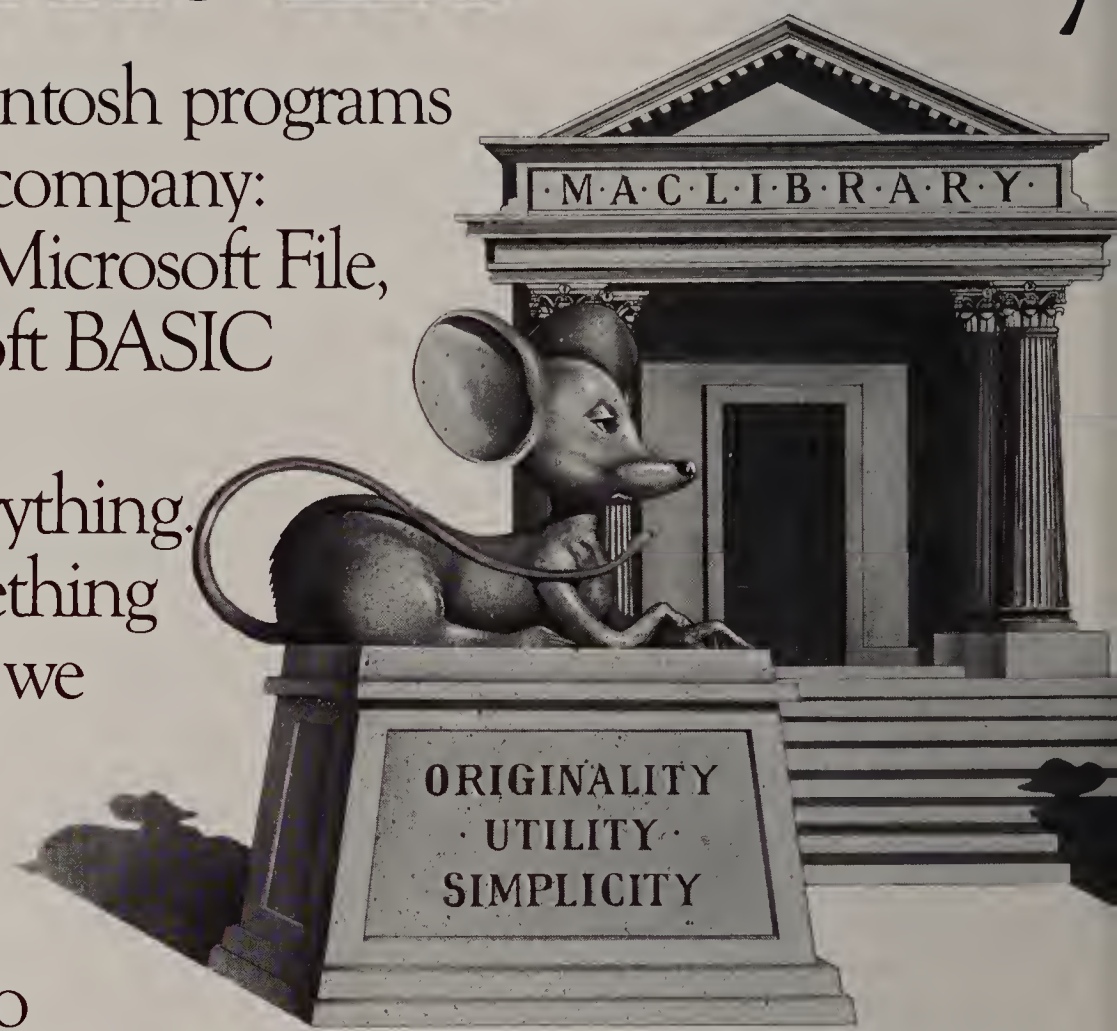

Every program has to sweat out an interview.

Because we've begun to build up an impressive body of Macintosh work, we founded Microsoft MacLibrary™ programs to house them.

Programs for business, for learning, for fun.

And these disks can't just roll in off the street. Each program has been exhaustively reviewed, previewed, and scrutinized.

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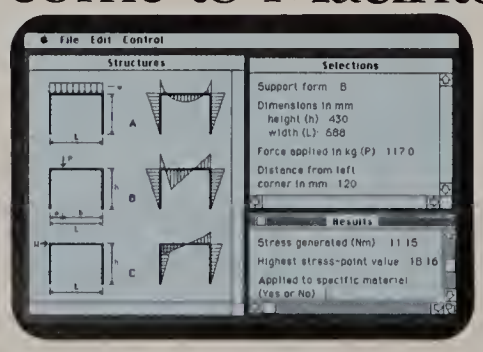
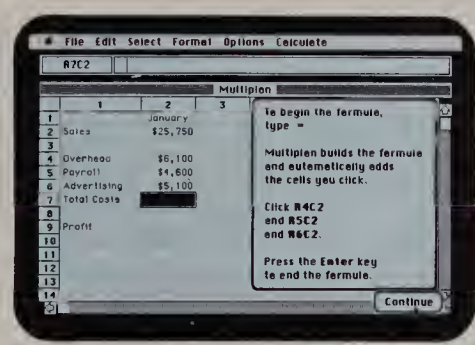
The renowned programming language, Logo, has now come to Macintosh. A mainstay of university curriculums, Logo teaches programming concepts, techniques, and problem solving strategies. And it makes it all fun to boot. Intriguing enough to challenge even an advanced programmer —or motivate a child—this is Logo's latest

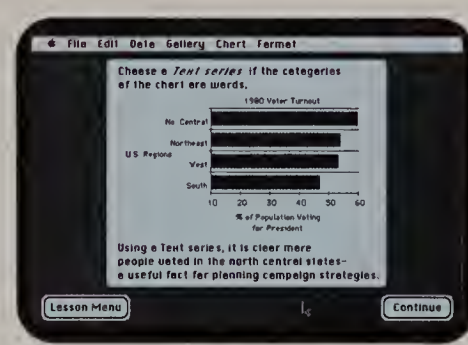


Logo by Logo Computer Systems Inc.

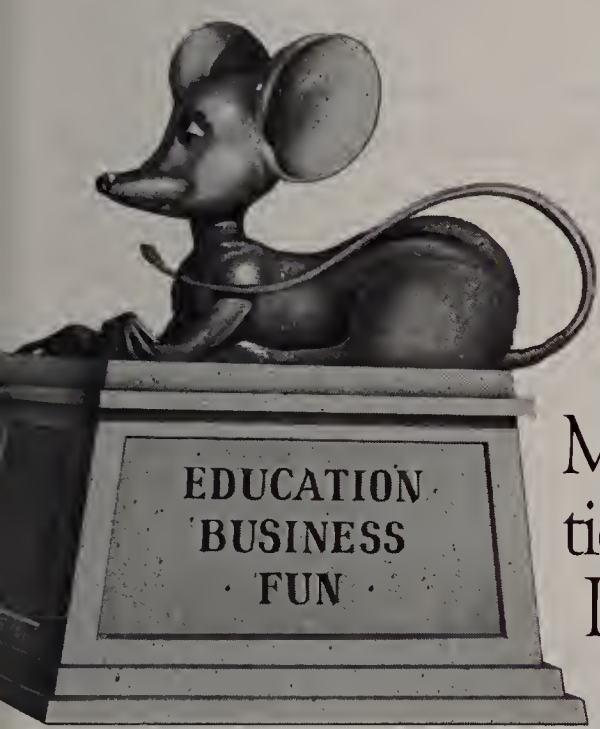
dedicated to Macintosh.™

generation. And it takes full advantage of all of Mac's easy to use features.





Learning Microsoft Multiplan®
and Microsoft Chart by Micro Courseware Corp.



Learning Microsoft Multiplan and Microsoft Chart is a superb interactive instructional program by Micro Courseware Corp. It walks you through the basics and into the intricacies of these sophisticated business tools. Teach yourself quickly and simply how to produce presentation quality graphics. As well as what-if projections, portfolio managers, and financial models.

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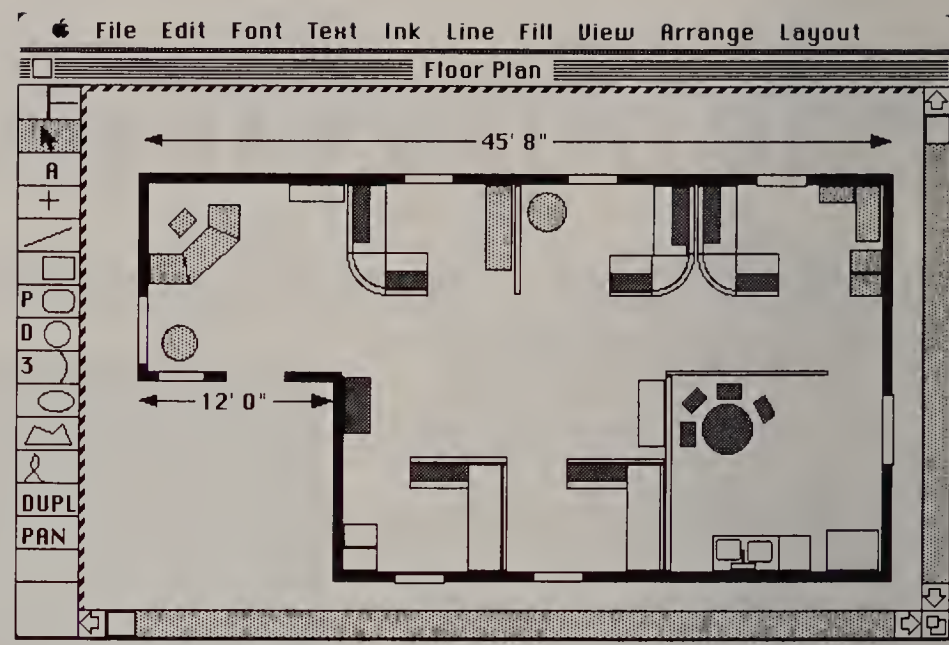

MacDraft, IDD

in the phone log during a call, providing a record that can be viewed, edited, or printed.

MacDesk's Readi-Printer feature allows you to print *MacDesk* files or other Macintosh text files while you are running another program. The program also includes Memowriter, a mini word processor that is compatible with *MacWrite* and *Microsoft Word.* Other utilities include an area code lookup window and an analog clock. List price: $99.95.

■ *IDD*

1975 Willow Pass Rd. #8
Concord, CA 94520
415/680-6818

MacDraft
An object-oriented graphics program for mechanical drawing. *MacDraft* includes the following features: rotation of objects in 1-degree increments, automatic dimension lines, circles by radius or diameter, arcs by radius or three points, distribution of objects along a line, creation of objects by inside or outside diameter, 64 patterns for Ink and Fill, and the ability to have four documents on the screen at the same time. *MacDraft* provides 16 drawing scales; when scaled objects are pasted into a drawing, they are automatically rescaled to match that drawing's scale. A zoom-out function allows you to view an entire document and modify a drawing, while zoom-in lets you magnify a portion of a drawing and add details. Applications include scaled drawings for architects and engineers, schematic diagrams, organizational charts, design layouts, and floor plans. List price: $200.

■ *Lake Avenue Software*

77 N. Oak Knoll #105
Pasadena, CA 91101
818/792-1844

Junior Ledger
A general ledger program that lets you specify accounting periods, account names, and account numbers. *Junior Ledger* features double-entry bookkeeping, automatic error detection, and the ability to create reports that detail several peri-

ods. The program can total amounts to $99,999,999.99. *Junior Ledger* creates a variety of management and accounting reports, including General Ledger Distribution Report, Check Register, Check Distribution Report, Cash Receipts Register, and Income Statement and Balance Sheet. A 512K Macintosh is recommended, and two disk drives are required; a hard disk may be required for large applications. List price: $245.

■ *Megahaus Corp.*

5703 Oberlin Dr.
San Diego, CA 92121
619/450-1230

MegaForm
A forms and report generator that includes spreadsheet, graphics, and database capabilities. *MegaForm* lets you design your own forms on the Mac's screen or use the program's ready-made forms. You can add boxes, circles, shading, and horizontal and vertical rules to your form with the program's object-oriented graphics editor or paste in images from *MacPaint*. Objects can be moved, stretched, shrunk, cut, and pasted. You can define cells in the form that relate to other cells, allowing you to use the form for calculations, as you would use a spreadsheet. You can print the filled-out form or store it on disk as a permanent record. Information can be retrieved according to cell values or according to a uniquely assigned serial number. A *MegaForm* cell can be directed to open a file in Megahaus's *MegaFiler* database, search for a particular record, retrieve information from that record, and insert it into the form. *MegaForm* requires a 512K Macintosh, and two disk drives are recommended. List price: $295.

■ *MicroMotion*

12077 Wilshire Blvd. #506
Los Angeles, CA 90025
213/478-7398

MasterForth
A FORTH programming environment that includes a 68000 macroassembler and support for the Mac's mouse, menus, Finder, and Toolbox. MasterForth's relocatable utilities and transient definitions make substantial programs possible on a 128K Macintosh. MasterForth matches the FORTH-83 standard dialect described in *Mastering FORTH* (Brady, 1984), which is included in the package. List price: $125.

■ *Palantir Software*

12777 Jones Rd. #100
Houston, TX 77070
800/368-3797, 800/831-3119 in Texas

MathFlash
A math tutor that displays a stack of flash cards one at a time. A student types in an answer or clicks a number on the screen. Cards that are answered correctly are sent to a pile that the student can watch accumulate. *MathFlash* keeps records to measure a student's progress and adapts drills to an individual's needs. List price: $49.95.

WordPlay
An educational game that features crossword and acrostic puzzles in a range of difficulties, including clear-grid puzzles that give no indication whether a square contains a letter or a blank. *WordPlay* can tell you whether your answer is

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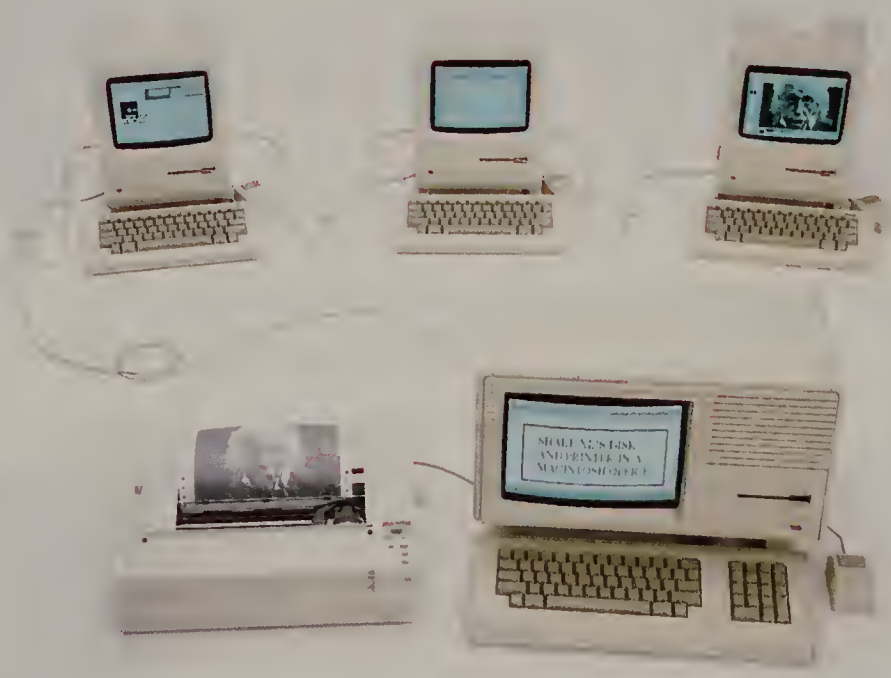

Our new **XL/Serve™** software makes your Macintosh Office work today, by letting you share a Macintosh XL's disk and printer with the rest of your AppleTalk network. Available now, direct from us or from your dealer.

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There are over 400 Macintosh software products on the market today, and more on the way. How do you cut through the hype and pick the best for your needs? And then how do you get your hands on it quickly and at the lowest price?

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Every three months, we feature candid reviews of the most promising Mac products. Along with each review, you'll find actual screen images of the product in use.

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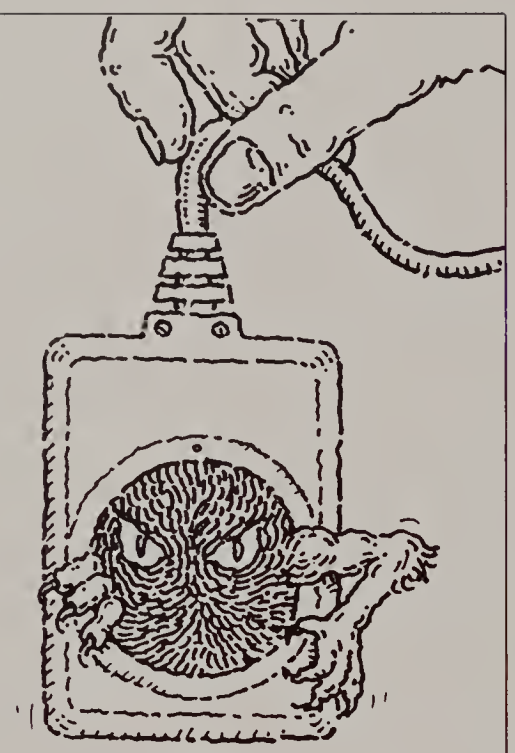

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correct, show you where your mistake is, or give you the correct answer. You can solve the more than 50 puzzles that come with *WordPlay,* enter word puzzles from magazines or newspapers onto a blank grid, or set up your own puzzles. The program lets you save a puzzle and return to it later. *WordPlay* allows several players to work on one puzzle by keeping track of each player's progress. List price: $44.95.

■ *PBI Software*

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415/349-8765

Icon Switcher
An application that lets you personalize Macintosh icons. You can draw your own icons in *MacPaint,* copy them to the Scrapbook, and replace a program's icons with your own in a few steps. List price: $19.99.

■ *StatSoft*

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Tulsa, OK 74104
918/583-4149

StatFast
A statistical data analysis program that includes descriptive statistics, t-tests for independent and correlated samples, analysis of variance, correlation, multiple regression, and various nonparametric statistics including chi-square, phi, and Spearman rank-order correlation. *StatFast* produces bar charts and scatter plots and can access files created by spreadsheets or databases. The program includes a data editor for entering and modifying data files. You can perform analyses on subsets of cases by specifying any number of filtering conditions. List price: $99.

■ *T/Maker Graphics*

2115 Landings Dr.
Mountain View, CA 94043
415/962-0195

ClickArt:Effects
A desk accessory in *MacPaint* that allows you to rotate, slant, distort, or add perspective to a selected image. You can rotate an image 360 degrees in 1-degree increments; slant it left, right, up, or down; distort an image by pulling one or more edges away from the center; and add perspective by reducing an image's size relative to a vanishing point. You can select all of these functions from the Apple menu while you are using *MacPaint.* List price: $49.95.

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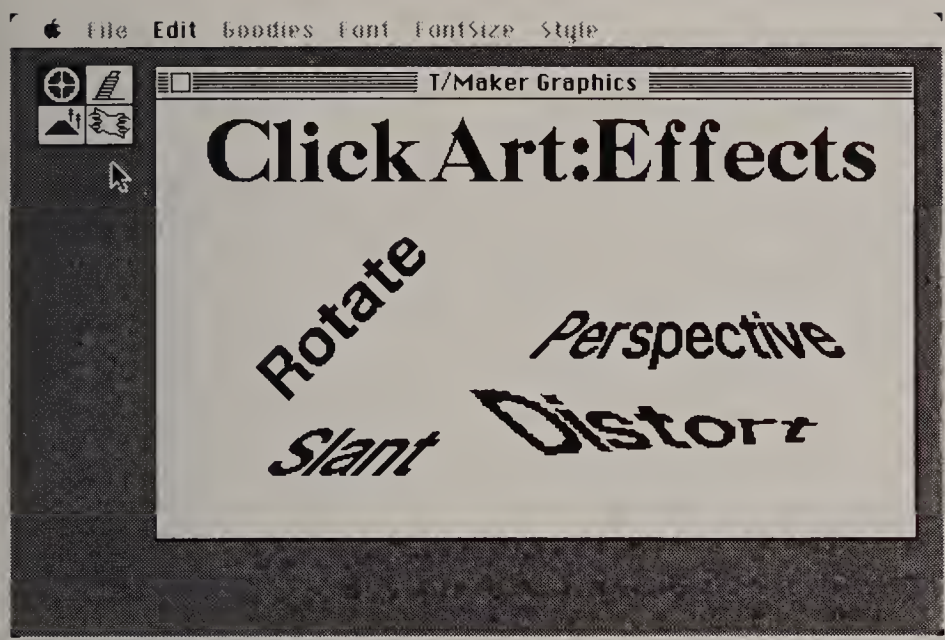

ClickArt·Effects, T/Maker Graphics

■ *TouchStone Software Corp.*

909 Electric Ave. #207
Seal Beach, CA 90740
213/598-7746

The Connectables Network
A set of programs that allows you to connect the Macintosh to computers that use the MS-DOS, UNIX, or Xenix operating system. The software—*MacLine, PCworks,* and *UniHost*—enables you to transfer ASCII and binary files between computers, send electronic mail, connect to information services such as CompuServe and The Source, and share peripherals. *MacLine,* which runs on the Macintosh, and *PCworks,* which runs on the IBM PC and other computers that use MS-DOS, provide ANSI, TTY, and VT-100/52 terminal emulation. *UniHost* runs on more than 50 computers that use UNIX or Xenix and enables *PCworks* or *MacLine* users to use the UNIX system without using UNIX commands. The computers in the network can be directly connected with serial cables or can communicate by modem. List price: *MacLine* $145, *PCworks* $195, *UniHost* $295, *UniHost* with *MacLine* or *PCworks* $495.

■ *Utopian Software*

P.O. Box 40028
Long Beach, CA 90804
213/597-2130

MacMusic
A program that lets you compose and edit music on the Macintosh. The program's music editor lets you use the mouse to insert, delete, or change notes. You can use *MacMusic*'s subroutine and call features to repeat sections of your piece without reentering them. *MacMusic* lets you change the time signature, key, volume, and instrument played at any time. You design your own instruments by modifying waveforms; you can play up to 16 instruments. At any point in the composition, the program lets you change the instruments you use in the four voices, or parts, that the Mac can play back. You play compositions through the Mac's internal speaker or through an external speaker. List price: $89.95 plus $2.50 shipping and handling.

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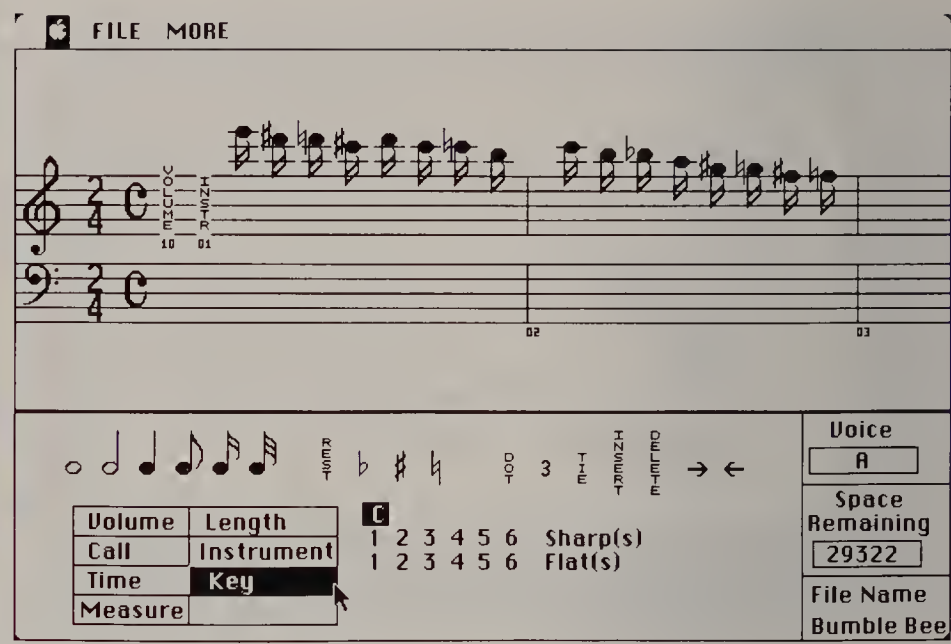

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A program that enables you to send and receive information between Macintoshes connected by the AppleTalk Personal Network. You can send text, graphics, spreadsheets, charts, and other applications to other Macs in the network, even when they are running other programs. You use *Mail Center*'s Application section to view mailboxes, see who is connected to the network, and send information to anyone in the network. The Receiver section of the program constantly monitors information sent over AppleTalk, receiving and storing information that is sent to its mailbox. The Receiver program integrates itself into the Macintosh operating system of other application programs, allowing *Mail Center* to run in the background. List price: for network with two Macs $299, for network with up to six Macs $499.

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■ *Capricorn Plastics*

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■ *Computer Alternatives, Inc.*

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■ *Pneu-Mouse Corp.*

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Pneu-Mouse
A device that suspends the Mac's mouse on a thin cushion of air, reducing friction and smoothing the mouse's movement. Pneu-Mouse includes an air-suspension platform in which the mouse rests, an air pump, a glass baseplate, and an air tube. You can pick up the mouse and reposition it without removing it from the platform. List price: $74.95.

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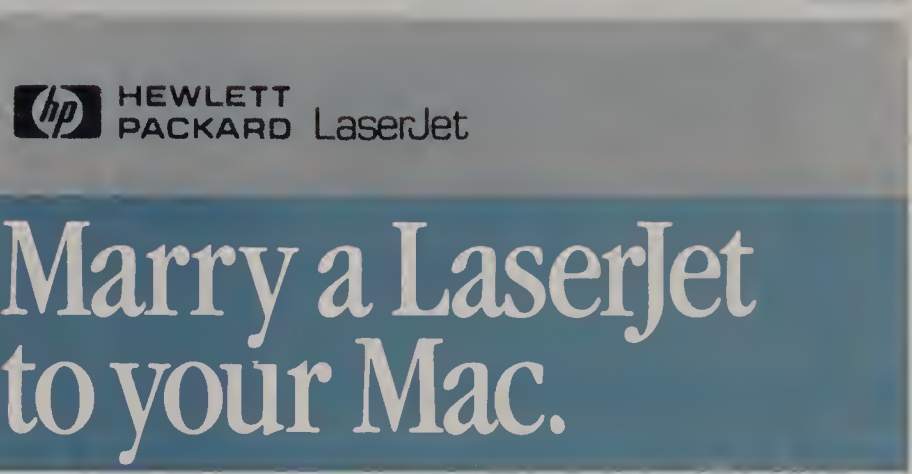

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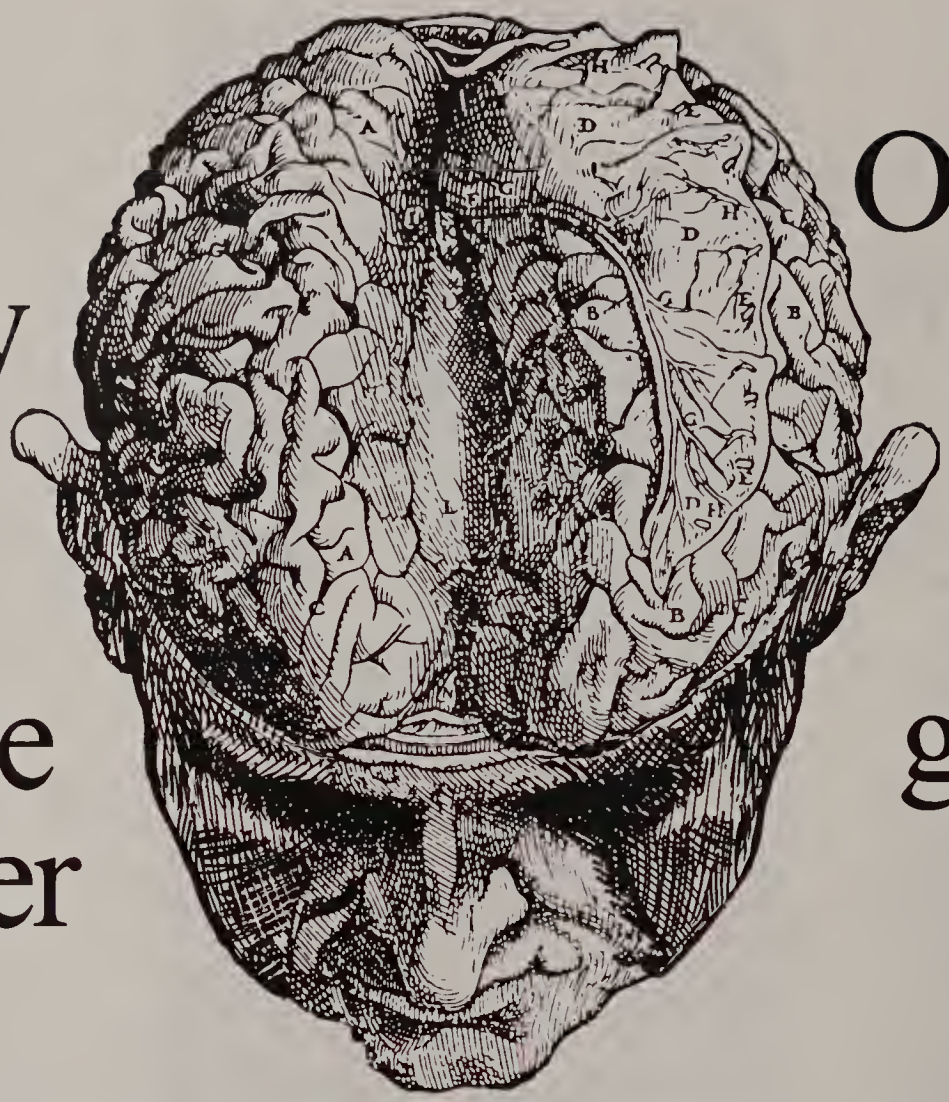

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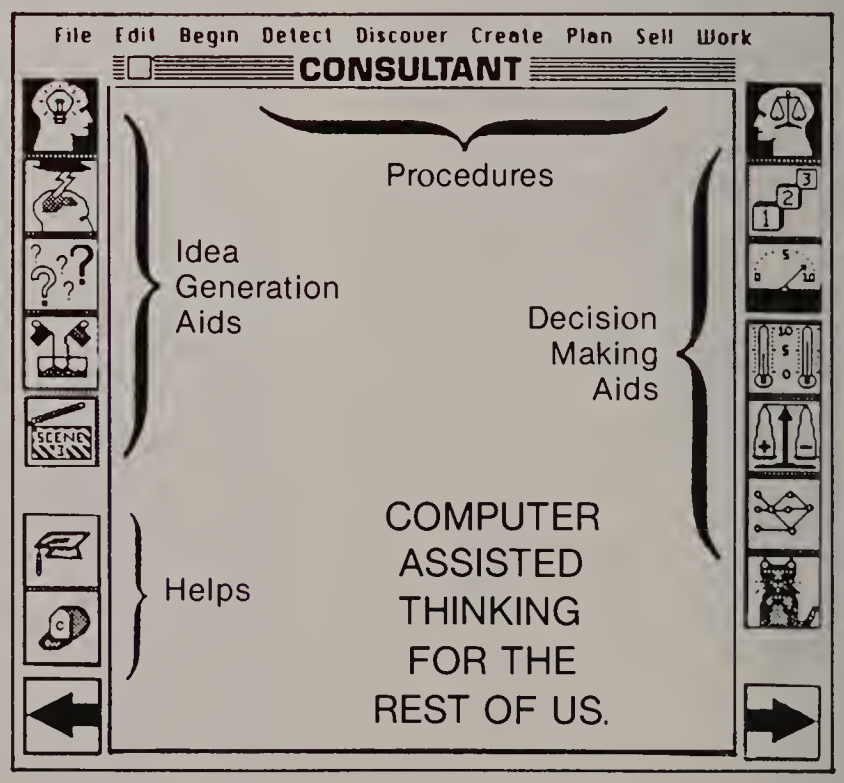

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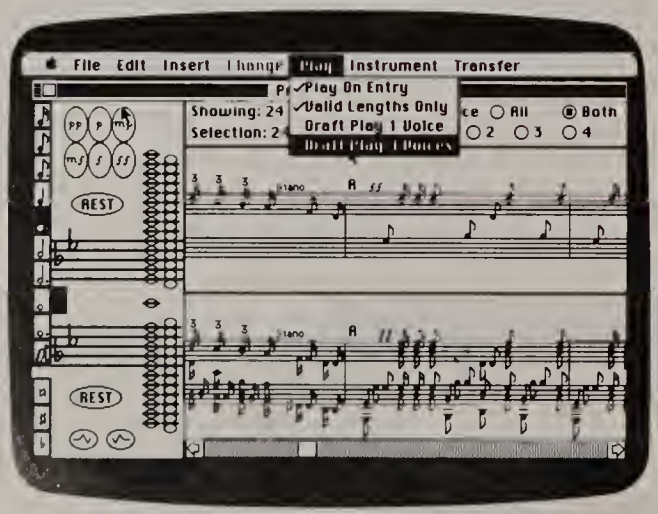

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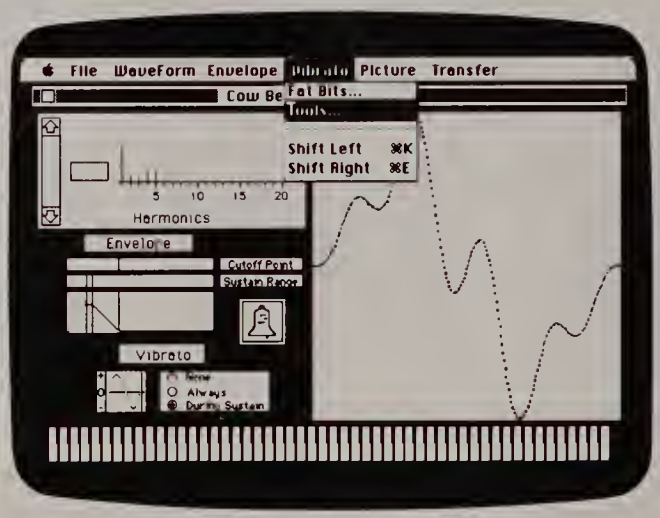

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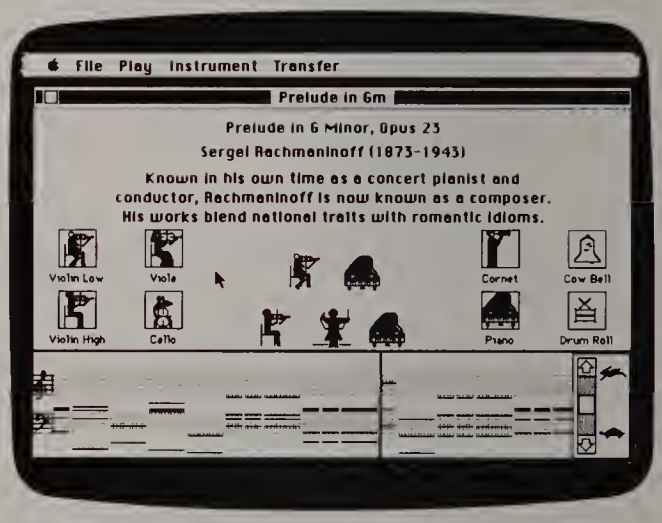

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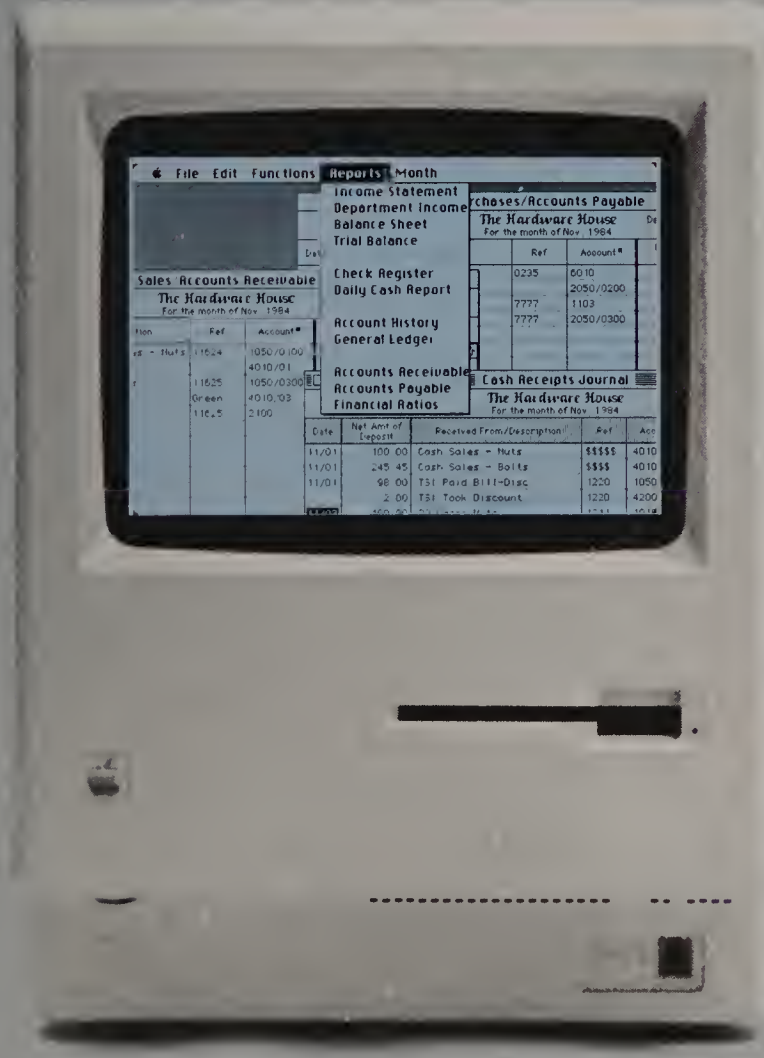

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Circle 190 on reader service card

Shopping the Electronic Software Shelves

Neil Shapiro

The electronic shelves of the MicroNet Apple User's Group (MAUG) libraries are stocked with fascinating treasures, including applications, new fonts, MacPaint pictures created with digitizing cameras and scanners, music files canned in Hayden's MusicWorks, and useful desk accessories. In short, there is something for everybody.

Calendar
Open
Eject
Cancel

Unfortunately, many MAUG patrons spend their time aimlessly wandering the electronic libraries' aisles because they don't know what's available or they're not sure how to sign out, or download, what they've found. Unlike browsing at the local library, wandering through MAUG costs money–from $6 to $15 an hour, depending on the time of day.

Previous articles in *Macworld* discussed in detail the electronic messaging and conferencing services of MAUG (see "Into the Mouth of the MAUG," *Macworld,* December 1984, and "Backstreets of the MAUG," *Macworld,* January 1985). It's time for a closer look at downloading, a more complex but potentially more rewarding aspect of MAUG. If you aren't a CompuServe or Delphi subscriber, read on anyway. Much of the downloading information here is applicable when you tap Apple City on The Source or connect to bulletin board systems.

The Basic Theory

Finding something of interest to download is easy. Actually downloading it, however, can be frustrating. Downloading is the process of receiving programs, text, or picture files over telephone lines from another computer. The opposite, using a modem to transmit software from your computer to another computer, is called *uploading.* All you need for downloading is a modem and a communications program that saves incoming data on disk. Apple's *MacTerminal,* Microcom's *MacModem,* and Hayes's *Smartcom II* all meet this requirement.

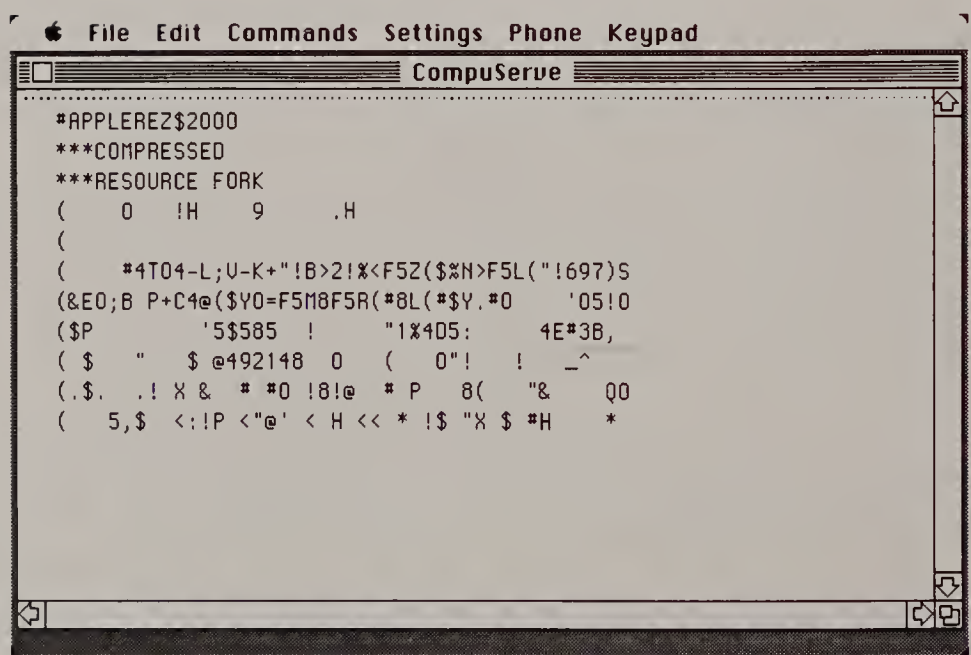


Figure 1
An encoded file doesn't look like much on screen. The gibberish represents the contents of the original binary file.

You can download two types of files: readable text files and encoded text files. Written in ASCII, readable text files include programs in BASIC and Pascal and Macintosh word processing documents saved with the Text Only option. Most readable text files you download will be either programs or documentation for those programs. You can identify a readable text file by the file name extension–the last three letters preceded by a period. .BAS and .PAS represent BASIC and Pascal programs, .DOC indicates a documentation file, and .HLP denotes a help file.

Encoded text files enable mainframe computers used by information services such as CompuServe, as well as telecommunications software in general, to store and transmit data written in binary format. Binary files include *MacPaint* pictures, word processing documents with information on formats and fonts, *Multiplan* worksheets, or *MusicWorks* documents.

Most telecommunications programs cannot make error-free transmissions of binary files. So that the files are not garbled, they have to be encoded before transmission. The encoding process uses ASCII values to represent the hexadecimal values of the data in binary files. The ASCII values make a file twice as long as its hexadecimal equivalent but ensure transmission with little chance of error. In simplest terms hexadecimal is a numbering system based on 16 numbers (from 0 to 15), which we would use instead of the decimal system if humans had eight fingers on each hand.

A program called BINHEX encodes binary files for transmission and decodes the files back into binary format after downloading. You can get your own copy of BINHEX through a user group or by downloading it yourself (see "Downloading, Step by Step"). As you might expect, an encoded file looks like gibberish on the screen (see Figure 1). You can identify an encoded file by its .HEX, .HCX, or .HQX file name extension.

Answering the Protocol

Not only can you download two types of files, you do so using either of two methods. The method you choose depends on the communications software you use and the system from which you download.

The first method involves using the Xmodem error-checking protocol when receiving a file. The Xmodem protocol causes CompuServe's computers to process and send the file in a way that protects the file from being garbled by static on the phone lines or other weak links in the communications chain. Error-free file transfer is especially important when downloading an application, which can be rendered useless by one lost or garbled bit.

(continues on page 143)

Downloading, Step by Step

Jim Heid

The following instructions assume that you are using *MacTerminal* to download from MAUG on CompuServe. If you download from some other source or are using another communications program, read the comments that follow certain steps.

The instructions also assume that your communications settings are set to 1200 bps, 8-bit word length, no parity, and XON/XOFF handshaking. Choose Compatibility from the Settings menu to check and adjust settings. For Xmodem file transfers set the transfer method to Xmodem and the remote system to Other; choose File Transfer from the Settings menu to adjust those settings.

Downloading Using Xmodem

- Locate the file you want using the Browse or Scan command. When MAUG displays its Disposition: menu, type D to download the file and press Return. The message "Starting Xmodem transfer" appears. Enter a carriage return when file transfer is complete.
- Choose Receive File from the File menu, type a name for the file that you are downloading, and press Return or click the Receive button. *MacTerminal* displays a dialog box that tells you how the transfer is progressing. When the transfer is complete, the dialog box disappears. If the transfer is unsuccessful, another dialog box states, "The file was not successfully received."
- Press Return to inform CompuServe that the transfer is complete.
- You can download another file or sign off. If you download a readable text file such as a BASIC program, you can quit *MacTerminal,* load Microsoft BASIC (MBASIC), and run the program. If you download an encoded file, you decode it with BINHEX.

Xmodem Troubleshooting

If you are repeatedly unsuccessful at downloading a file with Xmodem, check the communications and file transfer settings to make sure that they match those described above. If the settings are correct, ask the following questions:

- Does the information service support Xmodem transfers? Many, including The Source, do not.
- Is the service too busy for an Xmodem transfer? If a large number of people are using the service simultaneously, an Xmodem transfer does not work. Use the file capture method to download the file.
- Is your phone connection satisfactory? If you notice sporadic "garbage" characters on the screen before downloading, you may have a bad connection. Call back and try again.

Capturing a File

- Make sure *MacTerminal*'s Record Lines Off Top feature is activated.
- Locate the desired file using the Browse or Scan command. When MAUG displays its Disposition: menu, type R to read the file and press Return. If you are using a communications program that lets you save incoming data to a disk file, type R but don't press Return. Instead choose the command that begins receiving a file, type a name for the file, and then press Return. With Microcom's *MacModem,* for example, choose Begin Receive File from the Transfer menu.
- As CompuServe displays the file on screen, *MacTerminal* records on disk all lines that scroll off the top. Other communications programs store the data in the file you specify.
- When CompuServe has displayed the entire file, use the scroll bars to locate the beginning of the file. Select the entire text of the file by dragging along its length or by clicking at its beginning and shift-clicking at its end. Choose Copy from the Edit menu.

With other communications programs, do not perform this select-and-copy step; instead choose the command that ends the file capture process. With *MacModem,* for example, choose End Receive File from the Transfer menu.

- To capture another file, paste the contents of the Clipboard into the Scrapbook and repeat the foregoing steps. With other programs simply repeat the steps; no pasting is necessary. If you want to work with the captured file, sign off, quit *MacTerminal,* and start *MacWrite.* Next paste the contents of the Clipboard into *MacWrite,* then save the file using the Text Only option. Start the application for which the file is intended and use the file normally.

As you can see, capturing a file with *MacTerminal* is a cumbersome process, since you must select the file's text, copy it to the Clipboard, and then paste it into *MacWrite* to recreate the file. For this reason you may want to use *MacTer-*

(continues)

Downloading, Step by Step (continued)

minal for Xmodem transfers only and use a different communications program, such as the public-domain *MacTep,* for capturing files.

File Capture Troubleshooting

Assuming the communications settings are correct, little can go wrong with file capture downloading, since there is no danger of a time-out error and you can see the incoming file on screen. If you do run into trouble, ask these questions:

- Do you have enough free space on the *MacTerminal* disk? If, while capturing a file, *MacTerminal* displays a message stating that the disk is full, remove some documents or choose Clear Lines Off Top from the Commands menu, and try again.
- Did you select the entire file? Make sure you correctly locate the beginning and end of the file and select it carefully.

After displaying a file, CompuServe displays the message, "Key <ENTER> to continue." If you use a communications program that lets you capture the incoming file on disk, you may have to remove text extraneous to the file but necessary for transmission before you can use the file. MBASIC 1.0, for example, does not load the file but instead displays a "Direct statement in file" error message, meaning that a line has been encountered that does not begin with a line number. In such cases load the file into *MacWrite,* remove the extraneous text, and save the file using the Text Only option. Some applications, such as BINHEX and MBASIC 2.0, load the file and simply ignore the extra text.

Getting and Using BINHEX

Obtaining a copy of BINHEX from an information service involves downloading a file called BINHEX.BAS, which is a BASIC program that creates the BINHEX application. You must, therefore, have MBASIC (either 1.0 or 2.0) to download BINHEX. If you do not have MBASIC, you can get a copy of BINHEX through a user group. If you have MBASIC and want to download BINHEX.BAS, follow these steps:

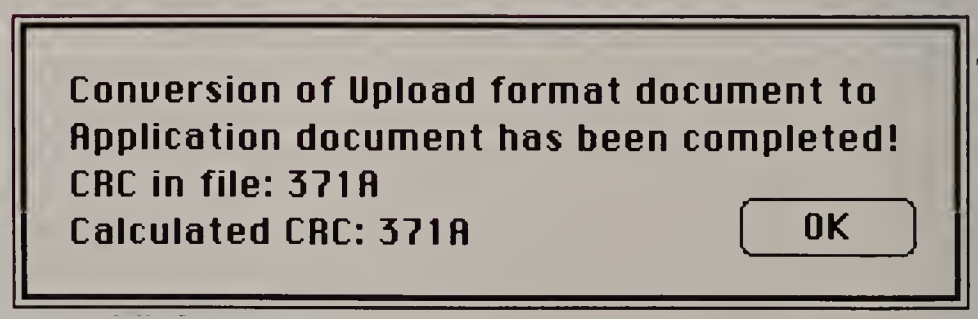
- Download the file BINHEX.BAS from the MAUG Data Library 4 using either downloading technique.
- Sign off, quit the communications program, and start MBASIC.
- Load the BINHEX.BAS program. If you downloaded it using Xmodem, simply load the file that *MacTerminal* created. If you captured the file, either paste the selected text into MBASIC or load the file that your communications program created.
- Run the program. After several seconds, a message is displayed telling you that the BINHEX application has been created.

To use BINHEX, download an encoded file using either downloading technique, sign off, start BINHEX, and follow these steps:

- Choose the Upload→ Application command from the File menu. The command tells BINHEX that you want to convert a file from upload (encoded) format to application (binary) format.
- BINHEX displays a mini-Finder containing a list of available files. Double-click on the encoded file's name.
- BINHEX asks for a file name to give the decoded file. Type a name and press Return.
- During the conversion process, BINHEX displays a dialog box containing several messages, ending with the one shown in "Checking the Checksum." The "CRC in File" and "Calculated CRC" values must match. If they don't, an error probably occurred during downloading. If the file you converted is an application, don't run it. It will probably crash and could even damage your disk.

If the values do match, the conversion was successful. You can quit BINHEX and use the decoded file.

Jim Heid is a Contributing Editor of Macworld.



Checking the Checksum

After decoding an encoded file, BINHEX displays two checksums. The first is computed when the file is encoded, the second when it is decoded. If the two values don't match, a transmission error probably occurred.

```
Receiving the File "missile hex". Size is unknown. To
Cancel, hold down the ⌘ key and type a period(.).

Blocks received:   5
```

Figure 2
When you download a file using the Xmodem protocol, MacTerminal *displays a dialog box that tells you how many "blocks" have been received. A block is a portion of the original file that is processed and transmitted with a method that helps eliminate transmission errors.*

(continued from page 140)

Apple's *MacTerminal* and Hayes's *Smartcom II* use the Xmodem protocol. When you specify an Xmodem file transfer, you don't see the contents of the incoming file on screen. Instead the communications program displays a dialog box that lets you know how the transfer is progressing (see Figure 2).

The Xmodem protocol has its disadvantages. Xmodem transfers aren't reliable when numerous subscribers are crowding access lines to an information service. Since many subscribers are using the service simultaneously, response time slows down. This bottleneck of bits causes what is called a time-out error, which occurs when the communications program concludes that it is no longer connected to the other computer. A time-out error forces you to restart the downloading process—an expensive proposition if you are downloading a large file.

To avoid time-out errors and to download files using software that doesn't work with the Xmodem protocol (such as Microcom's *MacModem*), use the second downloading method, which I call file capture. You simply tell CompuServe to display the readable or encoded file as if it were a piece of electronic mail or a message left by another MAUG member. Before you give the Read command, instruct the communications program to begin saving incoming information on disk. When you have received the entire file, tell the communications program to stop saving incoming data. You can then sign off and work with the file you received and saved, decoding it with BINHEX if necessary.

File capture does provide some protection from transmission errors. Errors in BASIC or Pascal programs are brought to your attention when you run them. Encoded binary files provide their own security blanket with a *checksum* that is computed when the binary file is first encoded. The number must match the checksum that BINHEX computes when you decode the file. If they don't match, a transmission error occurred during downloading.

Signing Off

As you can see, downloading software is not as easy as copying one disk to another. The process is complicated by numerous technical details, unreliable telephone lines, and mainframe computers that, unlike the Macintosh, require cryptic keyboard commands.

Remembering a few points, however, can lighten the load. First, know what type of file you're downloading. Second, know which method to use. And third, take advantage of MAUG's search features to locate specific items. If you still have trouble downloading, keep in mind that you can cry out for help from a MAUG system operator (SYSOP) or from another MAUG member by using the main menu's Leave a Message option. "Downloading, Step by Step" puts downloading theory into practice by showing the steps involved in typical downloading situations.

Once you become familiar with the procedure involved in using MAUG's data libraries, I hope you become a frequent visitor. After all, how many libraries let you keep what you check out? □

Neil Shapiro is founder and chief SYSOP of MAUG.

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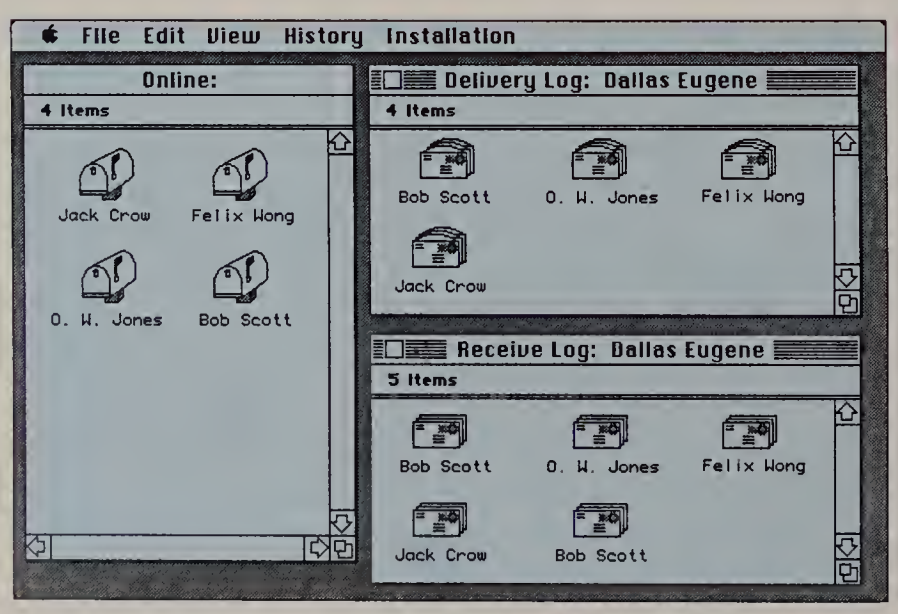

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Open Window

An exchange of Macintosh discoveries

Edited by Jim Heid

Open Window *offers tips to help you use your Macintosh more efficiently. Submitted by readers, industry experts, and the* Macworld *staff, items in this department address all facets of Mac computing, from applications and programming routines to capabilities of the Mac not covered in documentation.*

This month's *Open Window* includes instructions for photographing Macintosh hard copy onto 35mm slides and a method of making *MacTerminal* automatically redial a phone number. Also described are a simple technique for making cassette box labels with *MacPaint,* a way to adjust line spaces in *MacWrite,* and some programming techniques that make listings easier to read and understand.

Mac Slides

A slide presentation is a popular, effective way of conveying ideas. Often, however, time is too short to have the slides made by an audiovisual service. You can make your own by photographing hard copy produced with the Mac.

First design the slides and print them. I use *MacDraw, MacPaint,* and *Microsoft Chart.* If you use an Imagewriter, specify high-quality printing and use an old ribbon. High-quality printing with a fresh ribbon often looks too dark and muddy. You can add color to the hard copy by hand.

Next, photograph the hard copy with a 35mm camera mounted on a copy stand, making sure the film plane is parallel to the base of the stand. Use Polaroid's instant 35mm Polagraph film (ISO 400), a high-contrast transparency film that yields excellent results. You need to set the shutter speed and aperture settings for the light conditions under which you shoot.

Once your artwork is photographed, process the film using the Polaroid 35mm Autoprocess system. The development process takes about 2 minutes. Using the accompanying 35mm slide mounter, you can mount the slides in plastic slide mounts and preview them prior to your presentation. The Polaroid 35mm Autoprocessor and slide mounter cost from $60 to $100. The Polagraph film costs about $9 for a roll of 12 exposures. The cost averages less than a dollar per slide–try to match that using your usual source for 35mm slides.

If you have more time and access to a darkroom, you can get even better results with Kodak's Technical Pan film, type 2415, developed in HC-110 developer. Technical Pan film produces a negative image–white text on a black background–that is less strenuous to look at on a projection screen than black letters on a white background. For spectacular color slides, mount the negatives between colored gels.

Lynn R. Trusal
Walkersville, Maryland

MacTerminal Redial

Apple's *MacTerminal* lacks a feature that is a necessity for people who use electronic bulletin boards–the ability to redial a busy phone number until a connection is made. A way to work around this limitation is the Apple Modem's A/ command, which tells the modem to repeat the previous command–in this case to dial the phone number.

- Create a *MacWrite* text file of approximately 50 lines, with each line containing a capital *A* followed by a slash (*A/*). Save the file using the Text Only option.
- Start *MacTerminal* and choose File Transfer from the Settings menu. Change the Delay Between Lines setting to 2400 (40 seconds). Click the Text button to make sure the transfer method is Text rather than Xmodem.
- Specify the phone number with the Phone Settings command. Dial the number by choosing Dial from the Phone menu.
- If the number is busy, *MacTerminal* hangs up after 30 seconds. Choose Send File from the File menu and double-click on the name of the text file containing the A/ lines. *MacTerminal* dials the number again and, if it's busy, hangs up after 30 seconds and tries again. When you hear the remote phone ring, type ⌘-period to instruct *MacTerminal* not to redial the number again.

An alternative to putting the A/ lines in a text file involves storing them in the Scrapbook. Once you're in *MacTerminal,* you can copy the lines to the Clipboard and paste to transmit them to the modem. This method doesn't require you to change the Transfer Method setting to Text. As with the first method, type ⌘-period when you hear the remote phone ring. Both methods work with any modem that responds to Hayes-compatible commands.

Drew Ellner
Houston, Texas

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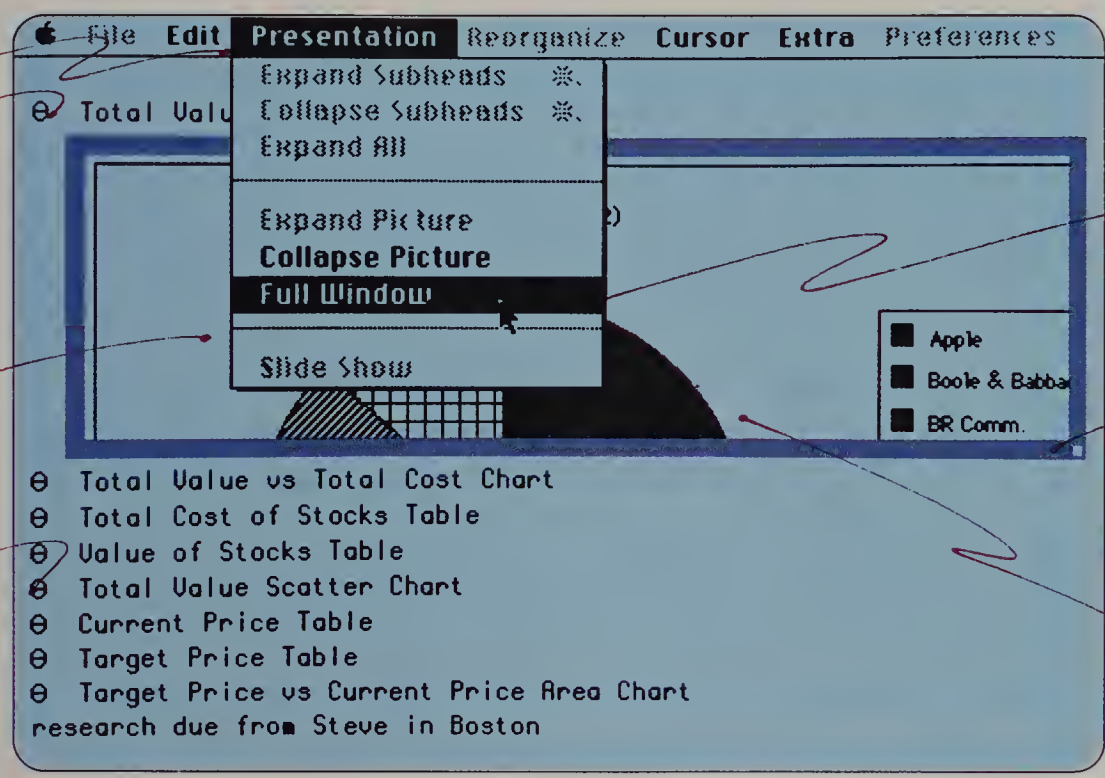

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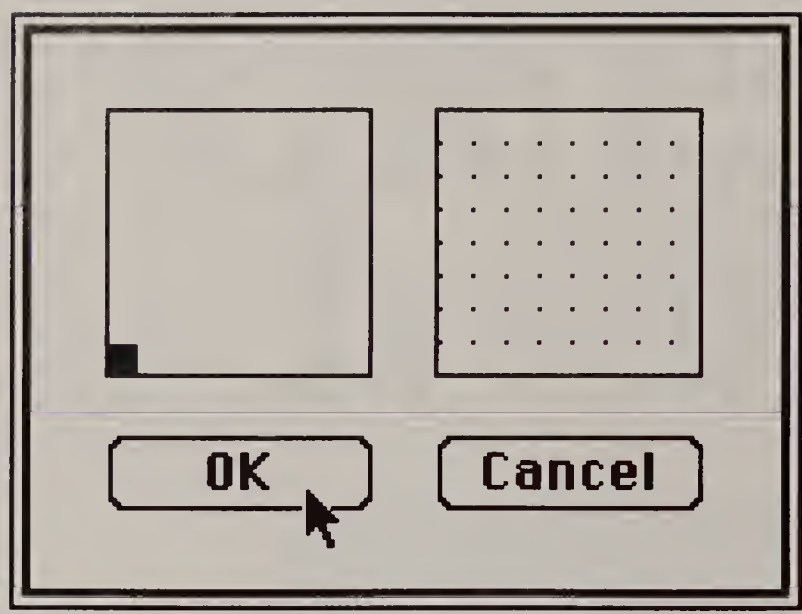
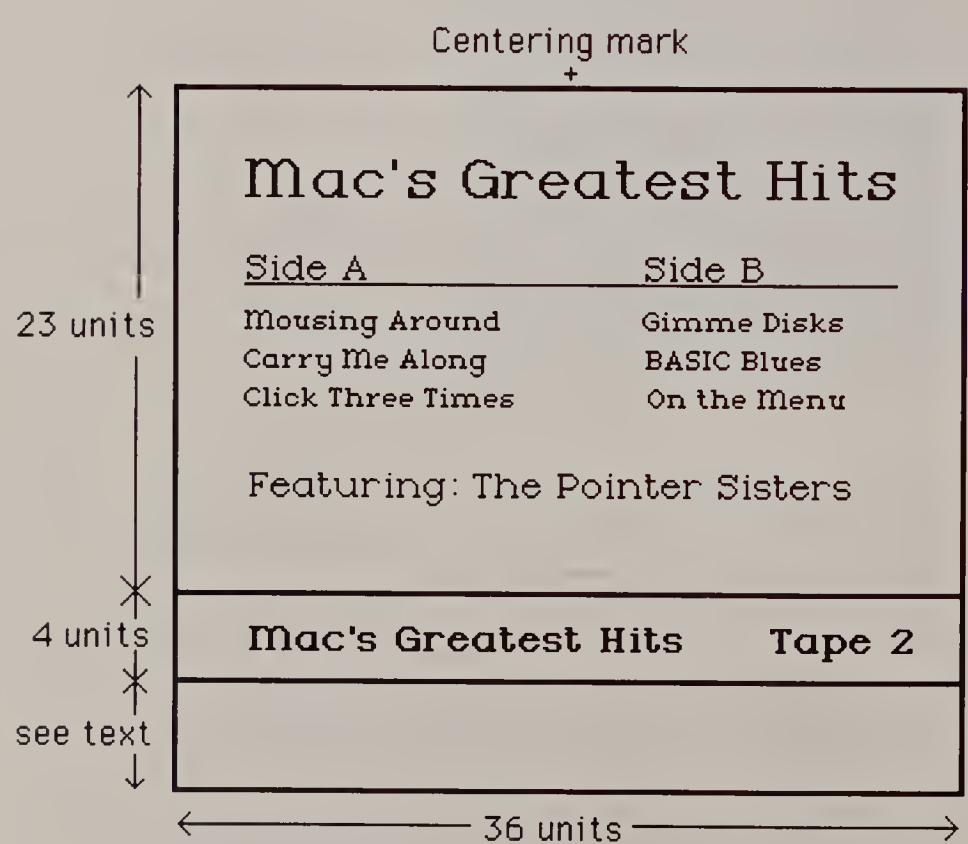


Measuring Guide
Create a measuring guide before you draw the cassette box insert by filling the drawing window with a pattern consisting of a single dot. Double-click in the all-white pattern, click the pointer in the lower-left corner of the left-hand window, and click OK.



Cassette Insert
The completed cassette box insert. A unit of measurement corresponds to the distance between two dots in the single-dot pattern. The size of the bottom flap depends on the type of box the insert is for.

MacPaint Cassette Labels
I knew my Mac would prove useful, but I never thought it would help me clean up a long-standing mess: my collection of audio cassettes. Until recently, many of my cassettes were unlabeled. I often spent as much time looking for a particular tape as I did listening to it.

Thanks to *MacPaint* and an evening's work, my cassette boxes are now labeled with tidy and attractive inserts. My method follows.

- To ensure that your inserts are the right size, create a measuring guide in *MacPaint*. Double-click on the plain white pattern in the pattern palette. Click the mouse pointer once in the lower-left corner of the left-hand window (see "Measuring Guide"). Click OK to produce a pattern consisting of a single dot.
- Fill the drawing window with the single-dot pattern. Click on the pattern, select the paint bucket, move the bucket anywhere within the drawing window, and click.
- Turn on the grid by choosing Grid from the Goodies menu. At this point you are ready to create the large rectangle of the insert.
- Using the pencil, mark a dot as the upper-left corner of your insert. Count 36 spaces to the right and mark the upper-right corner there.
- Select the medium line thickness and connect the two dots with the line tool.
- Locate the lower-left and lower-right corners 23 spaces below the upper corners and complete the rectangle with the line tool.
- Create the spine for the insert by drawing another rectangle, four spaces high, just below the first one.
- Create the rectangle for the flap just below the spine. For TDK cassette boxes make the flap five spaces high; for regular Norelco boxes make it nine spaces high (see "Cassette Insert").
- Erase the dots inside the insert and save the picture as Cassette Template.

You can design inserts, save them under different names, and print them. Medium-weight index paper works well; construction paper may gum up your Imagewriter. Cut out the design; the fit is snug so you may need to trim. Fold on the two horizontal lines. Since the printer scores these while printing, the insert folds easily.

Some final tips: 9-point Geneva boldface works well for two lines of text on the spine. If you need more space to list song titles and other information, move the template lower on the page and add another large rectangle 22 spaces high just above the first large rectangle. Fold this extra flap in when you use the insert. After typing information on the fold-in flap, select the text with the marquee and turn it upside down. Finally, a center mark above and below the template helps in centering titles.

Gerald Blalock
Ann Arbor, Michigan

Custom MacWrite Spacing
MacWrite's rulers offer three types of line spacing—single, one-and-a-half, and double. While the choices are adequate for most documents, sometimes it's necessary to format text more precisely, such as when printing on forms. A sim-

ple solution is to type a space at the end of any line that needs to be moved down from the line above it. Select the space and increase its font size until the spacing is correct [see "MacWrite Spacing"].

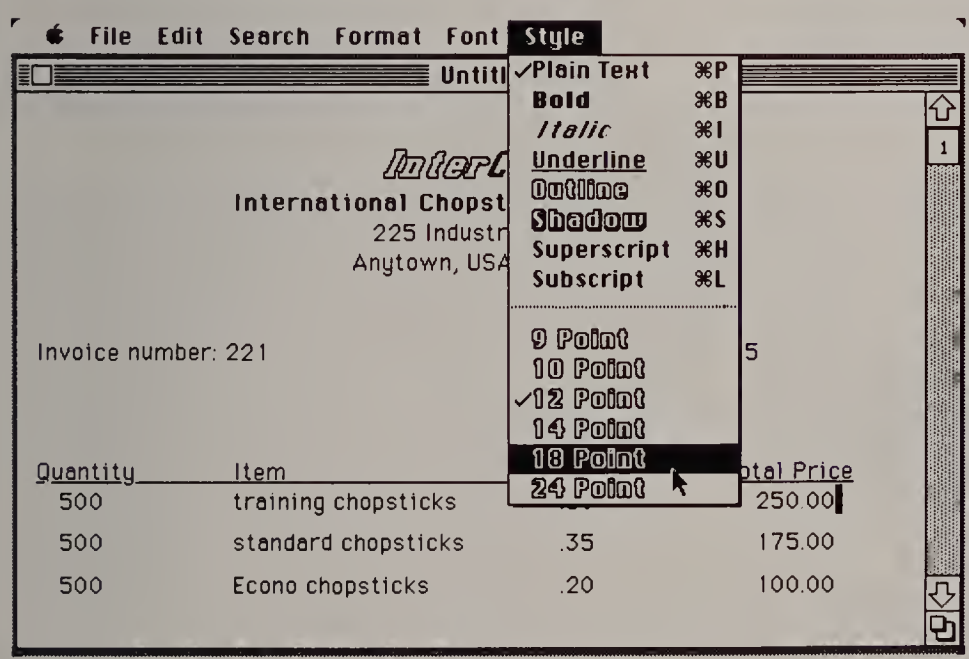
John TeSelle
Nashville, Tennessee

Legible Listings

BASIC and Pascal for the Macintosh are interactive, responsive languages that let you make program changes "on the fly" and immediately see their effect. The advantage can work against you, however, if you throw programs together without much advance planning. Chances are you'll end up with sloppy listings that are difficult to read and understand and that probably have a few bugs hidden in the mess.

Neatly formatted program listings are easier to understand and modify than their thrown-together counterparts. Here are several rules that will make your programs a little easier to read. "Legible Listings" contains some examples of the rules in use.

- Put spaces around math and relational operators, especially in complex expressions containing parentheses.
- Indent related program lines, which include the code within a FOR...NEXT or DO loop, as well as subroutines or procedures.
- Use variable names that indicate the variable's purpose—*balance.due* instead of *bd*, *price.per.share* instead of *ps*, and so on. This rule also applies to label and procedure



MacWrite Spacing

To adjust a line space in MacWrite, *add a space at the end of a line, select the space, and change its point size. Here the* Econo chopsticks *line is about to be moved down from the line above it. The first two lines have already been adjusted using the same technique.*

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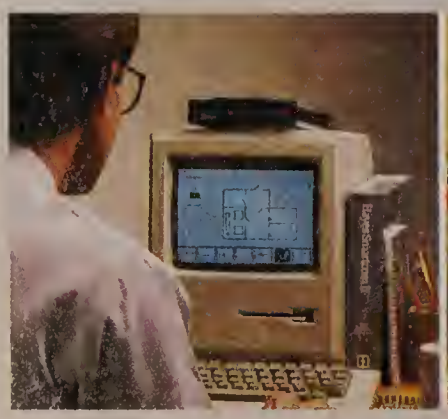
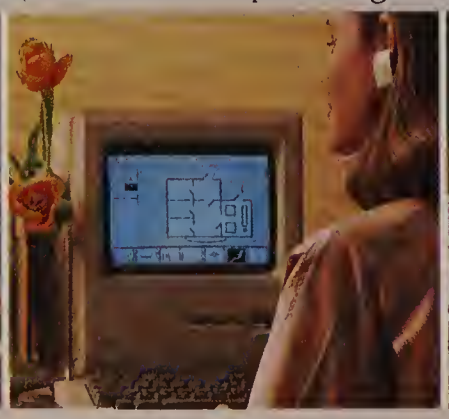


Atlanta, 3 P.M. "Here's the plan for the new space. What do you think?"



Boston, 3:04 P.M. "Looks good. But can you move the lounge over here, and add a second exit, like this?"

Atlanta, 3:05 P.M. "Brilliant! I'll incorporate these changes for tomorrow's meeting."

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names; *save.new.data,* for example, describes a procedure more accurately than *disk.write.*

• Use constants, whose values do not change as the program runs, to represent font, menu, and button numbers. If, for example, your Microsoft BASIC program uses New York font, add this line at the beginning of the program:

```
new.york = 2
```

When it's time to switch to New York, use

```
CALL TEXTFONT(new.york)
```

You can tell at a glance which font is being called.

• Use comment statements liberally. Begin a program with comments that describe the program's purpose, its version number, and the dates any modifications were made. Begin subroutines or procedures with comments that describe their purpose. Finally, add comments to the end of any line whose purpose might not be clear to the reader.

• With Microsoft BASIC and Macintosh BASIC, avoid placing multiple statements on a line. A program listing should flow from top to bottom, not from top to bottom and left to right.

A legible listing does have its price: it requires more memory and, in the case of a Microsoft BASIC program, may run more slowly. In most cases the memory and performance differences are slight. If a program is especially large, however, you may have to forego some rules or break the program into separate modules.

Jim Heid
Peterborough, New Hampshire

Weak	Strong
`m=md/g`	`miles.per.gallon = miles.driven / gallons.used`

`FOR x=1 TO 10`
`PRINT "Hello"`
`FOR y=1 TO 5`
`PRINT "Hi again."`
`NEXT y`
`NEXT x`
	`FOR outer.loop = 1 TO 10`
	`  PRINT "Hello"`
	`  FOR inner.loop = 1 TO 5`
	`  PRINT "Hi again."`
	`  NEXT inner.loop`
	`NEXT outer.loop`

`CALL TEXTFONT(2)`
`CALL TEXTFACE(1)`
	`new.york = 2`
	`bold = 1`
	`CALL TEXTFONT(new.york)`
	`CALL TEXTFACE(bold)`

Legible Listings

Following a few simple rules can make program listings easy to read and understand. Adding space around math operators, using variable names that indicate purpose, indenting related lines of code, and using constants to represent font numbers are just a few ways you can increase legibility.

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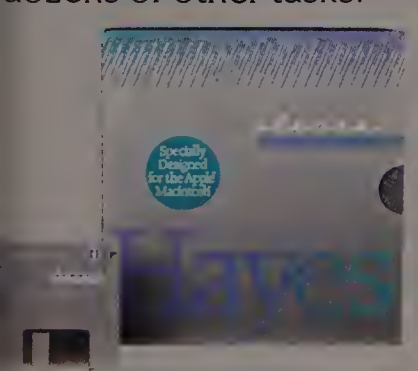

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Printing Wide

I recently purchased Apple's *MacProject* and found that I received a bonus: a printer driver for the wide-carriage, 15-inch Imagewriter. The file, found in the System Folder, is called Imagewriter 15. You can copy it to other disks to let other applications take advantage of the wide-carriage Imagewriter. The printer driver also gives applications the ability to print a document at half size.

When you copy the Imagewriter 15 driver to another disk, drag the old Imagewriter file to the Trash and rename the Imagewriter 15 file Imagewriter.

To take advantage of the 15-inch printing capability, open the document you want to print and choose Page Setup from the File menu. Click the Computer Paper and Tall options and then click OK. In *Multiplan* this procedure gives you an 11- by 14-inch worksheet. The improvement is not as dramatic in *Chart* because of distortion that occurs when you print in high quality, although standard-quality printing works well.

Jim Brown
Quincy, Illinois

The technique described above works; however, Apple engineer David Casseres reports that the printer driver shipped with MacProject *has been tested only with that application and may not work properly with others. He says that the driver should work under standard printing situations, such as printing in Geneva or New York in supplied font sizes (as opposed to scaled sizes; 12-point Athens is a scaled size, since Athens is supplied in only 18-point). Apple is working on a 15-inch Imagewriter driver that works with all applications, according to Casseres.*

The bottom line? You can either wait for Apple's official release of the 15-inch Imagewriter driver or, if you have MacProject *or* Microsoft File, *copy the Imagewriter 15 file to other application disks. If you choose the second alternative, however, you may encounter problems, especially when you print in scaled font sizes.—Ed.*

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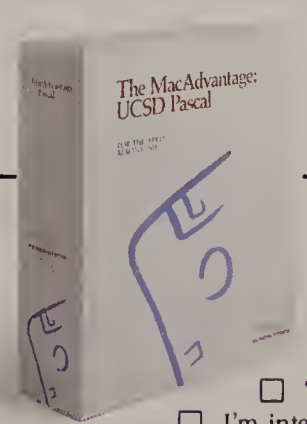

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Peerless Itzhak Perlman

Edited by Jeffrey S. Young

Musical instruments today come in two varieties: traditional instruments like the violin and digital instruments like the Kurzweil Model 250, which electronically mimics more than 30 instruments with amazing precision. Whereas digital instruments reflect today's rapidly evolving technology, finely tuned traditional instruments radiate centuries of extraordinary craftsmanship. In fact, the sounds produced by the three-centuries-old violins created by Antonio Stradivari are the benchmark by which all violins, as well as their electronic equivalents, are judged.

A person of rare talent indeed is needed to coax exquisite sounds out of a Stradivarius. One such person is Itzhak Perlman. A native of Tel Aviv, father of five children ranging in age from 1 to 16, and internationally celebrated concert violinist, Perlman is also the proud owner of a 512K Macintosh.

Macworld *Contributing Editor Jeffrey S. Young traveled to Perlman's Upper West Side apartment in Manhattan to get his impressions of the Mac and the technological revolution in music.*

Itzhak Perlman is an approachable man with a lively wit and a habit of constantly cracking puns. His mind, like his musicianship, has intensity and a broad range of expression; *exuberant* and *effusive* might partially describe the force of his personality. We talked in a wood-paneled music room dominated by a grand piano, with a wall and part of the floor occupied by the latest audio and video equipment and 11 Grammy awards casually scattered on the shelves.

The Mac resides in another room that serves as Perlman's business office. Large calendars covered with *X*s fill the walls, beside maps of the United States and the world. The maps are peppered with pins showing where he has performed or is scheduled to. Perlman is on the road some 200 days of the year, and he's a regular guest on the "Tonight" show as well as a beloved performer on "Sesame Street." He's no hacker; his interest in the Mac comes from its ease of use and the fun he and his oldest son have with it.

Like every Mac owner, Perlman was interested in any programs I had that he didn't. I was demonstrating the chess program *Sargon III* to him when he exclaimed, "Wow! That's unbelievable." The violinist paused.

"Wait till I see this interview in *Macworld,*" he said. "It'll say, 'Itzhak Perlman: Wow! That's unbelievable' . . . right?" He eyed me for a moment.

"Oh, I don't care," he said, turning his attention back to the Mac. "Now which disk is this? I've got to have it."

Macworld: Is the Mac your first computer?

Perlman: My son Noah had an Apple II + for five or six years. It conked out on him while he was writing an essay, so we decided that it was time to change. We did some research and initially wanted to get the Apple IIc.

We spoke to some people who felt that the Macintosh was a fun computer. We went to one of the computer stores, and Noah totally fell in love with the Mac. So he bought the 128K version.

Macworld: How did you come to have your own Mac?

Perlman: Later that same week I played a benefit concert in Washington for disability rights, which are very important to me. After I took my bow on the stage, a guy came out and handed me a red Macintosh apple. I said thank you very much, and afterwards he brought out an Imagewriter and a Fat Mac. Within the period of one week, we got two Macintoshes. Of course, my son was very upset that he had to pay for his, while I got mine for free. In one week I was the owner of a bushel of Apples.

Macworld: What do you use your Mac for?

Perlman: Now that I have it, it's really quite handy. I store speeches and material that I need to refer to. I use it for word processing, but most of all we—my secretary and I—use it for a database. I hope to store all my recital programs in the computer. If I have a concert to play in a particular city, I'll be able to tell what recital I played previously in that city and on what date and so on.

'You need to emphasize doing it yourself, rather than having the computer figure it out for you.'

I also want to put my entire Rolodex into the computer. We have a big mailing every holiday season, and it changes every year. This way it will be much better; if I want to change the list, I just cut and paste.

But you see, you're talking to a person who is basically totally a noncomputer person. I suppose there is an addictive quality to this machine because it's not beyond your control. What really fascinates me is that a computer, unless it just doesn't work at all, is never wrong. Whenever something doesn't work, you are the one who's not doing something right. It's not the computer's fault, except in those infrequent instances when it conks out or when you need the state of the art.

Macworld: Available equipment is changing so fast.

Perlman: It's always like this. As you can see, I have all sorts of gadgets here. They're from the dark ages—I just got them yesterday. They're practically out of date before they're even delivered.

I have a camera that goes with this little videotape machine on the floor, but now I want to buy the all-in-one unit. I'm waiting because I have a feeling that the all-in-one camera will be surpassed by something else. But I'll hear about it as soon as I buy the old one. My son's little 128K, which was the state of the art for all of two days, is in the toilet. Mine is a 512K machine, and it's going to be in the toilet next week.

Macworld: That's a far cry from violins.

Perlman: Yes. With violins, the older they are, the less in the toilet they become.

Macworld: What do you play?

Perlman: A Stradivarius. It's a 650K.

Macworld: And does it really have a unique sound?

Perlman: State of the art. It comes in color, too. And you should see the programs! I've got a Mendelssohn program, a Tchaikovsky program, a Brahms program. I've got MacPlay on it. On a bad night it's called Mac-out-of-Tune.

Macworld: Stradivari established the state of the art for the violin more than 300 years ago.

Perlman: Yesterday I was talking to a guy who had a music synthesizer, and he was telling me how it's the most fantastic synthesizer. I asked if it were brand new, and he said, oh no, it's ten years old; they don't build them like this anymore.

Macworld: Having seen MusicWorks *on the Macintosh, do you think personal computers are going to have any impact on the music field?*

Perlman: Computers in music—I don't know. Let's say you have 3/4 time, and you want to put a whole bunch of notes in a bar. The computer automatically puts the right amount of notes in one bar, and if one note sticks out too much, the computer ties it into the next bar. It automatically does what you want it to do as far as putting things in a very orderly way. Is that better than having to learn music yourself by trial and error? I don't know.

Macworld: How about computers as a tool in musical education? You do a lot to bring young people to music. Won't computers facilitate the learning process?

Perlman: If you want to make using a computer in music education a creative thing, you need to emphasize doing it yourself, rather than having the computer figure it out for you. You see, when the computer interprets the notes you write, you're sort of limited. With an empty score, a good ear, and your imagination, you've got all the capabilities of doing things by computer—and much more. You're limited only by your mind, not by the machine's limits.

As a matter of fact, the creative person is the programmer, not the user. Programming is where the creativity is. Somebody like Bill Atkinson creating *MacPaint* or somebody developing a video game or writing the program for *ConcertWare* or *MusicWorks*—that's the creative part. I'm not so sure about those who use the computer, because they're given a set of limitations when they sit down in front of the machine, and those are the limitations of the program, not the musician.

Macworld: Could a machine ever take your place as a musician or a recording artist?

Perlman: In recordings it's been the same thing. The rush to technology gets all the attention. First we had mono, then stereo, then quadraphonic, and then digital recordings such as videodisks and compact disks, which I find phenomenal. Now I'm told that compact disks will be replaced by digital tape. Digital tape is being used for recording, and the recording industry is going to make little digital tape cassettes to play on your portable recording devices.

My point is, no matter how sophisticated the recording equipment, when you reproduce a violin sound, nothing will replace an engineer with a fine ear, the right kind of microphones, the right kind of atmosphere, and all the right conditions. You still need a fine human ear to reproduce a good violin, piano, or orchestral sound. In other words, whether it's 4-track, 16-track, 32-track, or however many tracks, you still need somebody to manually control and experiment with various settings to produce a true fiddle sound. You can record one day, and if it's more humid the next day, the notes will sound different. If it's less humid the day after that, the notes will sound different again. From that point of view, you can't ever do away with the human touch. You can't produce a true sound absolutely 100 percent. You can try for the high 90s—and that, thank God, is still human.

Some of the recordings you hear sound much too mechanical; there's too much of the advancement of electronics to suit me. It does not sound natural. In their own fuzzy, scratchy way, the old 78s sometimes have a natural quality that we're missing today.

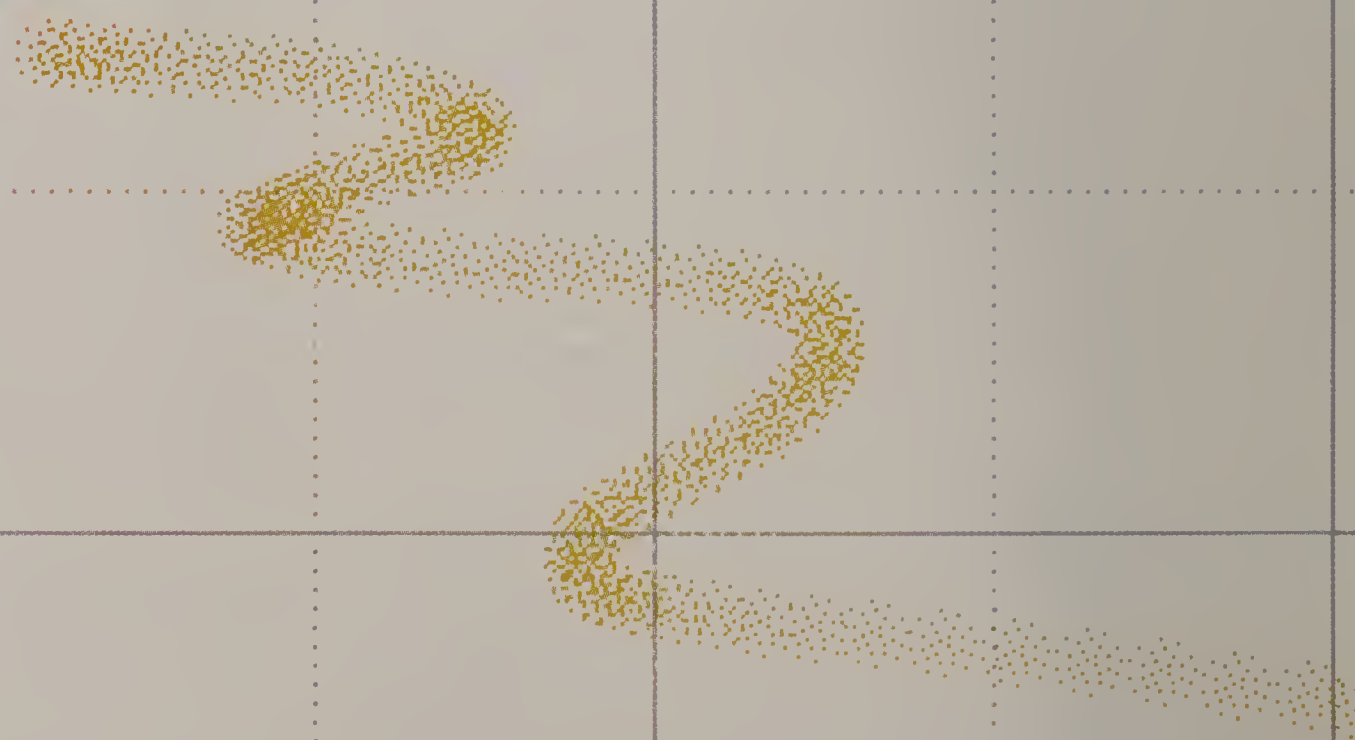
Macworld: So the one thing computers can't replace is the person playing the music.

Perlman: Right—at least not in my musical world. You cannot replace the musician mechanically or electronically or computerwise or however, unless you want to clone somebody.

Computers can help you put your life in order or help you discover how stupid you are. In other words, a computer is a product of the people who put it together. Like a concert, it's only as good as the players are that night. □

● ● ● ● ● ● ● ● ● ● *Jeffrey S. Young is a Contributing Editor of* Macworld.

Unleash Your Fingertip



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All of the elements of the Macintosh Office will be on display. The 512K Macintosh, the LaserWriter, and AppleTalk™, as well as *Jazz* from Lotus, are just a few of the products you'll get to see.

The Macworld Exposition has a targeted schedule designed to fit your busy schedule. As a dealer, a distributor, a retailer, a business user, or an educator, the three-day conference and exposition is designed for you.

Day one is for dealers, distributors, retailers, and other third-party vendors to talk to Apple and the 100+ exhibiting companies about their products.

Days two and three are specifically geared for people interested in the Macintosh as a tool for business and anyone else interested in the Mac.

Who should attend?

Industry: Dealers, distributors, retailers, wholesalers, manufacturers, systems houses, consultants, technical programmers, all other ISOs
Business: CEOs, presidents, vice presidents, managers, comptrollers, owners/partners
Professionals: Doctors, nurses, bankers, lawyers, engineers, stockbrokers, real estate and insurance agents, CPAs, consultants
Education: Administrators, faculty, students

Here's a look at some of the conference sessions designed for you:

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- Developing Software for the Macintosh
- How to Start and Survive in Business with a Macintosh
- Maximizing MacPaint®
- The Mac Clinic
- A Guide to Better Business Graphics
- Maximizing MacWrite®
- Database Management on the Macintosh
- Getting the Most out of Spreadsheet Programs
- How to Get Your Programs Published
- What's Available in Mac Software
- File Management Tips and Techniques
- Maximizing Macintosh Disk Storage
- The Mac in the Classroom
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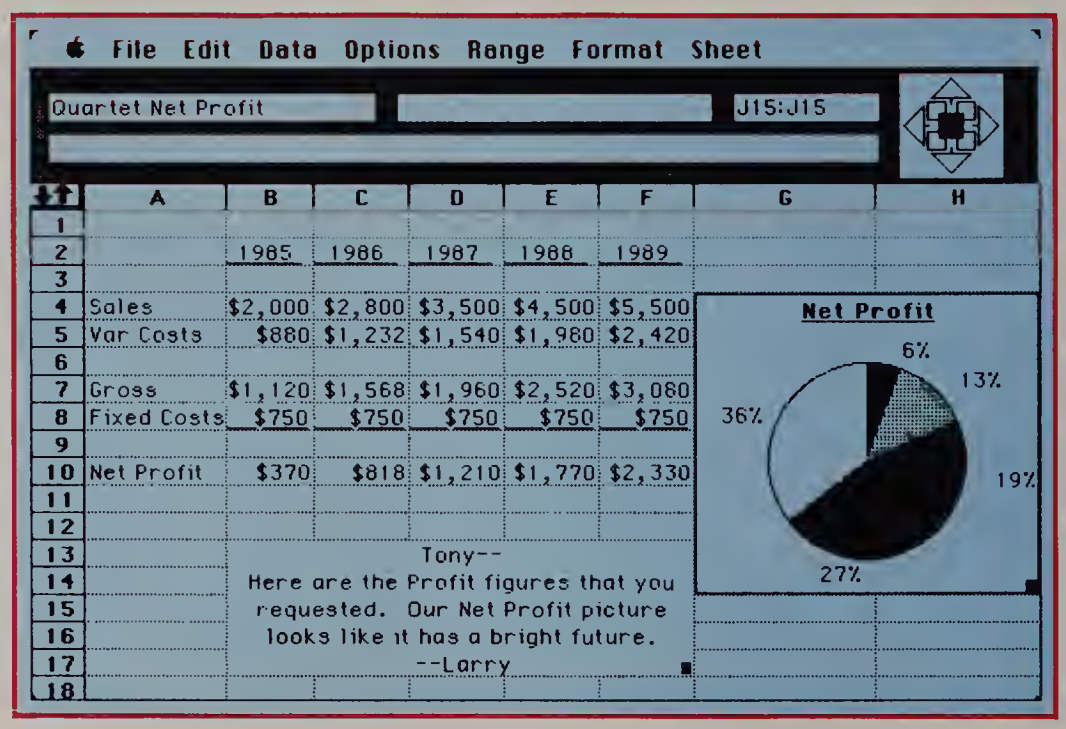

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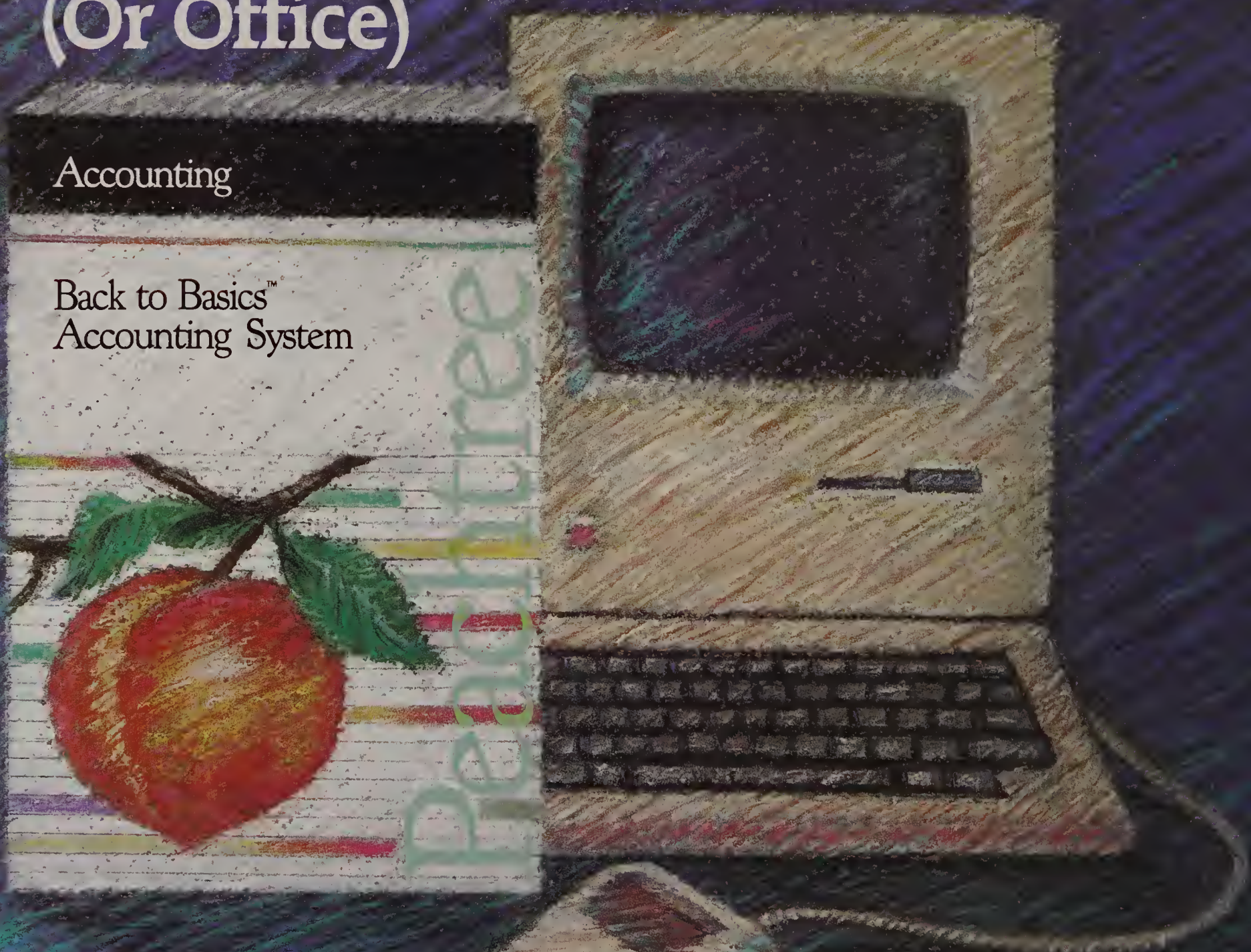

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Macworld Gallery

An exhibition of Macintosh graphics

Edited by Erfert Nielson

In addition to the three winners of the Macworld Art Contest, this month's Gallery *includes a special feature: a look at the first comic book drawn on the Macintosh.*

If you want to enter the Macworld Art Contest, send a paper copy of your drawing and a description of how you created it to Macworld Gallery, *555 De Haro St., San Francisco, CA 94107. The first-place winner receives $500 and a Summagraphics MacTablet; two second-place winners receive $250 each.*

$500–First Prize

Sleeping Dog
I drew the lower portion of the drawing freehand with the pencil and a touch of spray paint. I drew the upper portion with the pencil, then I used Trace Edges, Invert, and patterns from the paint bucket, followed by a little refinement in FatBits.

Kathleen Wert
Philadelphia, Pennsylvania

Sleeping Dog

$250–Second Prize

The Year of the Cat
I've been using the Macintosh at the office in my spare time. This drawing is a combination of two separate drawings. First I drew the cat. Then, in a separate document, I drew the trees and the moon on a black background. After making sure the outline of the cat was solid so no black would "leak" in, I lassoed the cat, cut it to the Scrapbook, and pasted it into the second drawing.

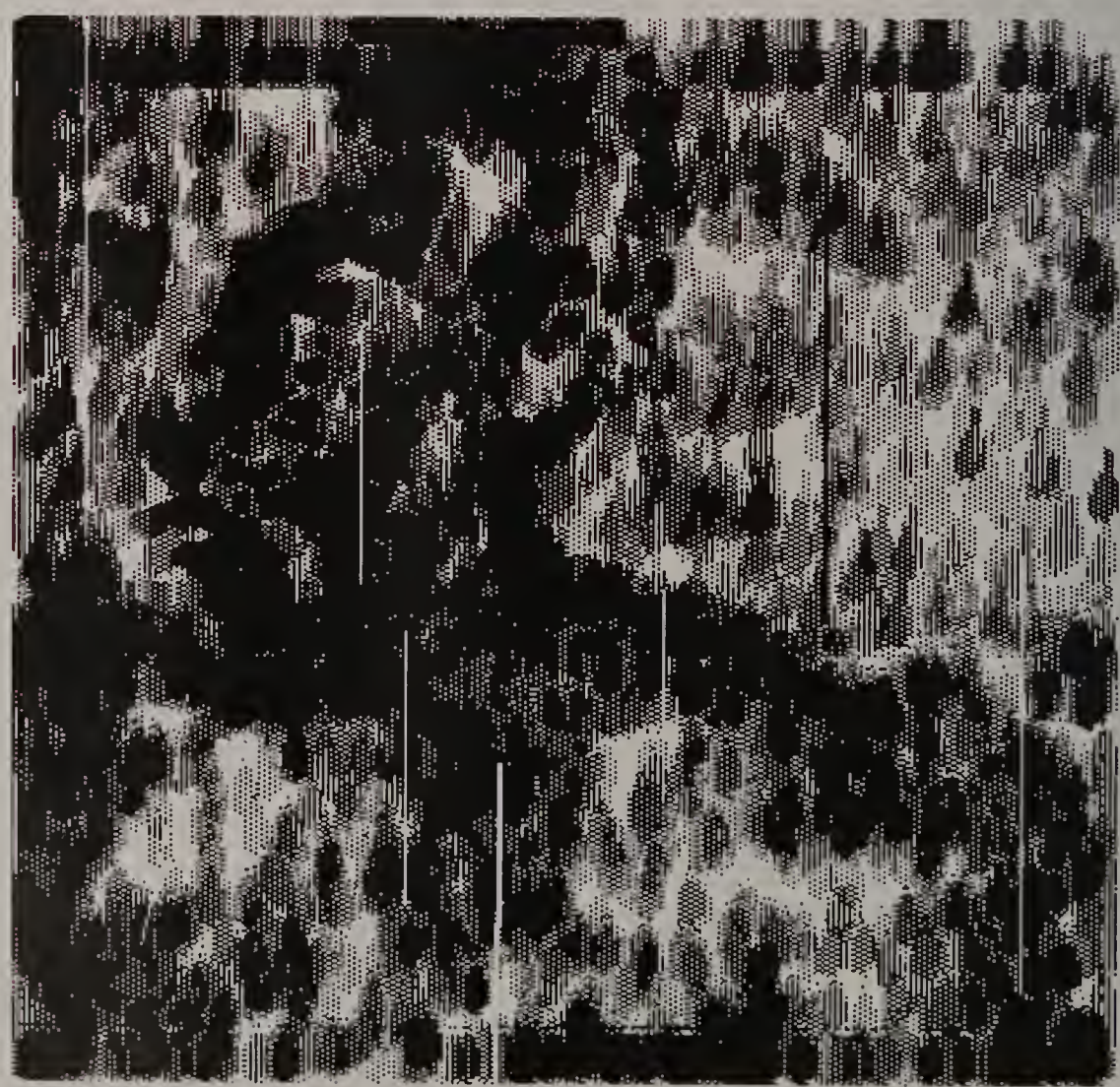
Sylvie Peltier
Longueuil, Quebec
Canada

The Year of the Cat

$250–Second Prize

Fear of Drowning
This drawing was an experiment. I drew a teardrop shape using the paintbrush and then lassoed it and dragged it around the screen with quick, jerky movements while holding down the Option and ⌘ keys. To make the darker areas, I moved the shape more slowly. I added the vertical to provide a contrast to the soft, mottled texture of the teardrop shapes. Finally, I used a small amount of spray paint to give more texture to the face.

Ronnie Sampson
Richmond, Virginia

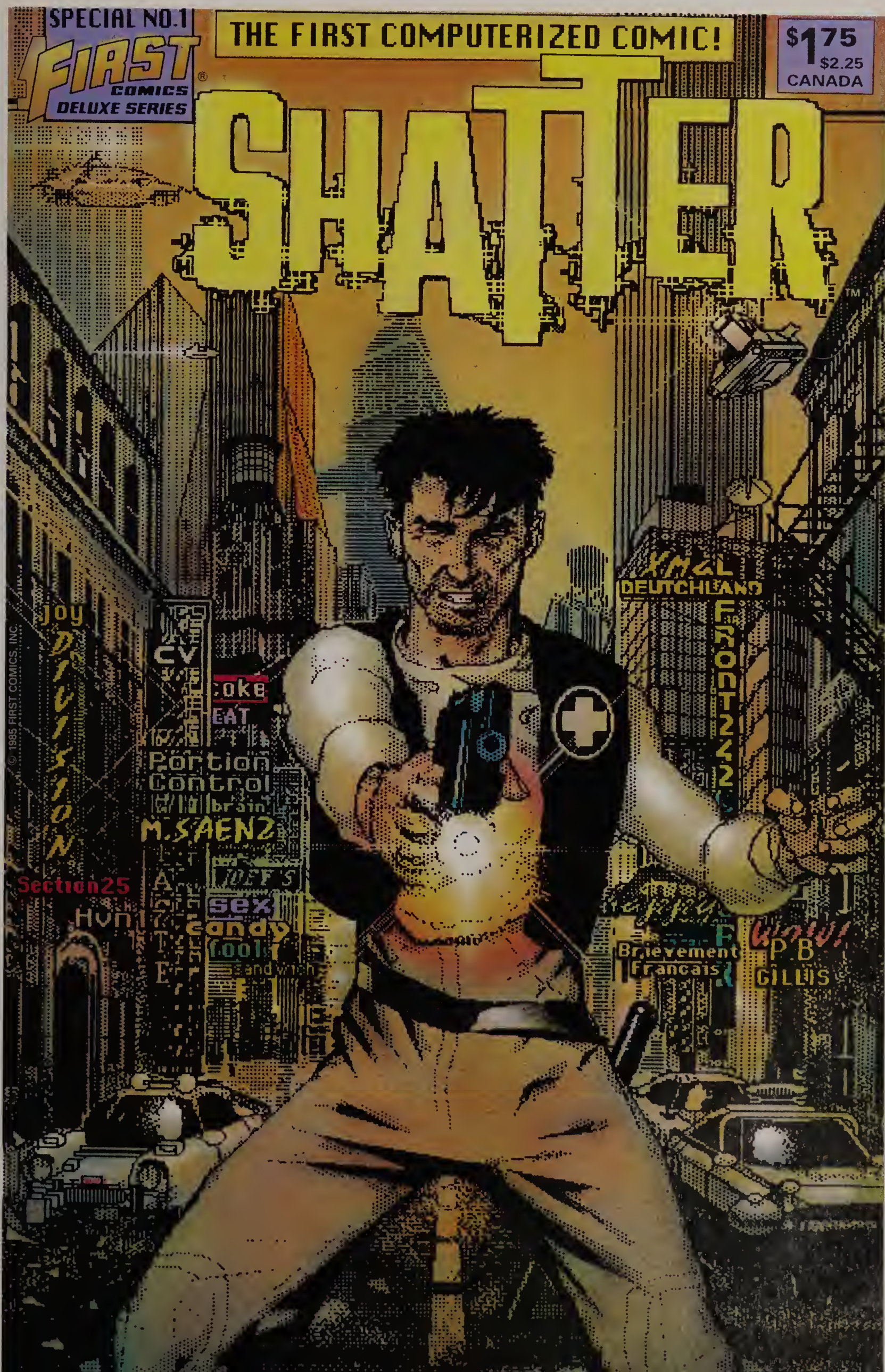


Fear of Drowning

Computer Comics

The pages shown here are from *Shatter*, "the story of a twenty-first-century policeman in a world where everything is computerized, all jobs are temporary, and corporate headhunters take their jobs very seriously." *Shatter*, the creation of artist Michael Saenz and writer Peter Gillis, is published by First Comics of Evanston, Illinois. The drawings and text were done on the Macintosh, then printed and hand-painted.

If you can't find *Shatter* at your local comic book store, send a check for $2.25 to First Comics, 1014 W. Davis St., Evanston, IL 60201.



Excerpt from Shatter

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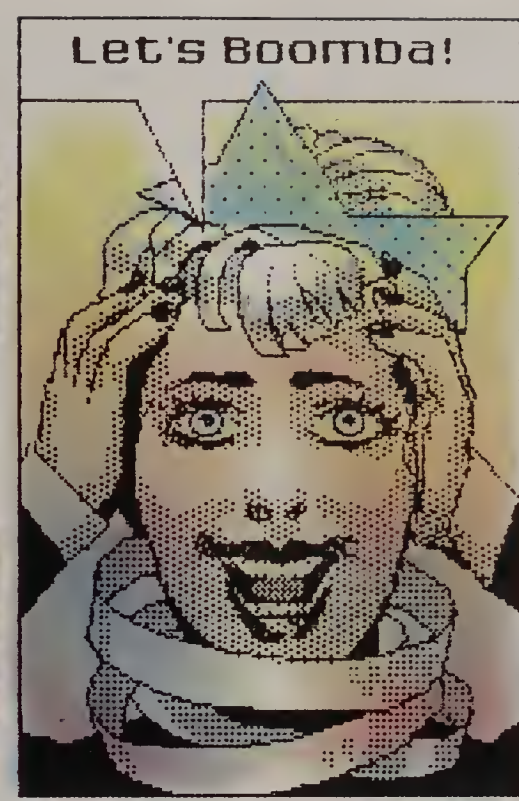

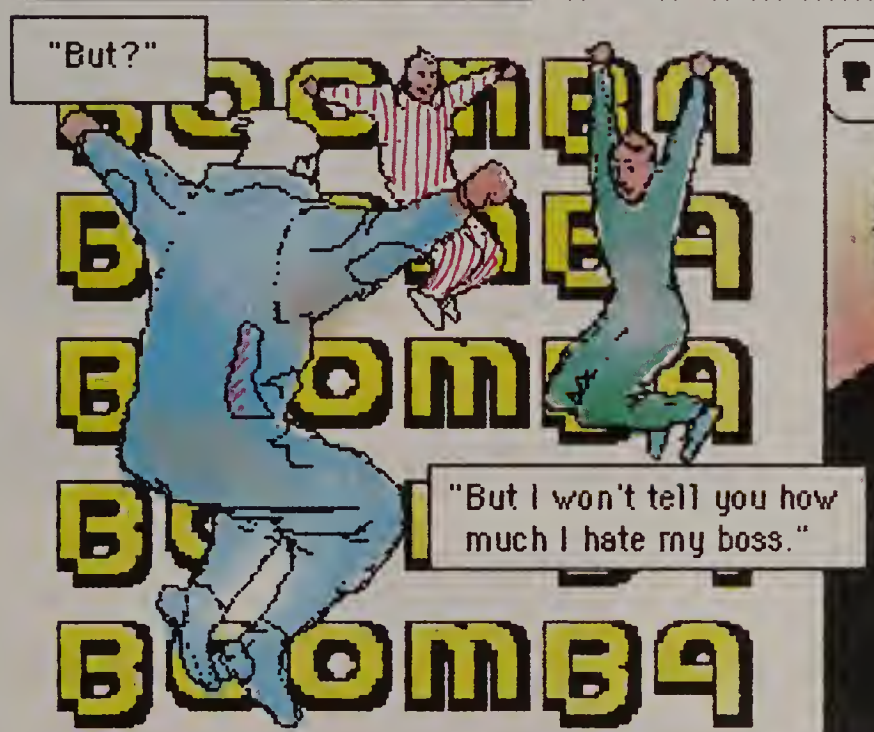

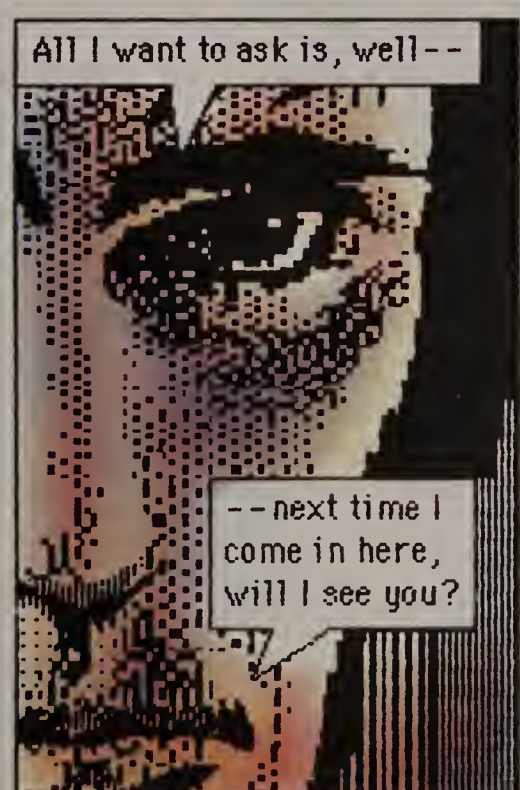

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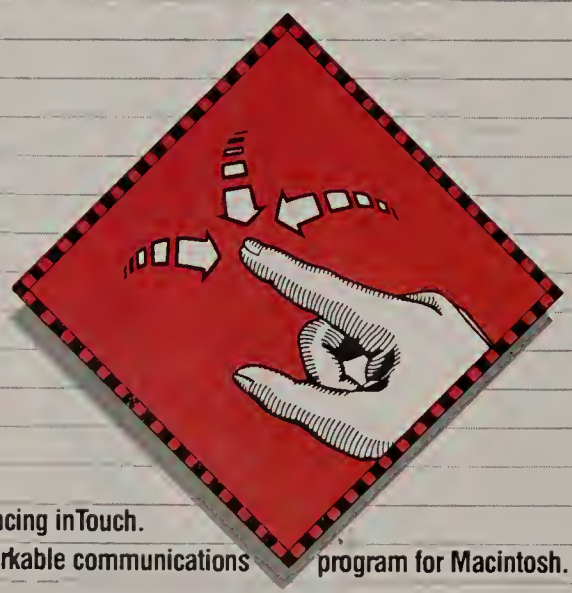

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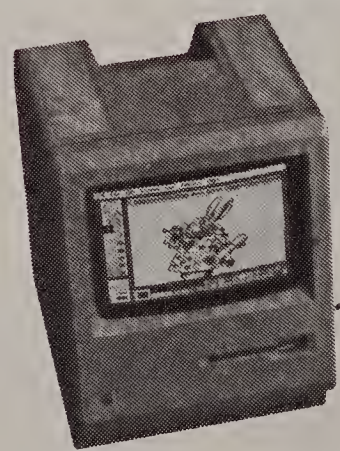

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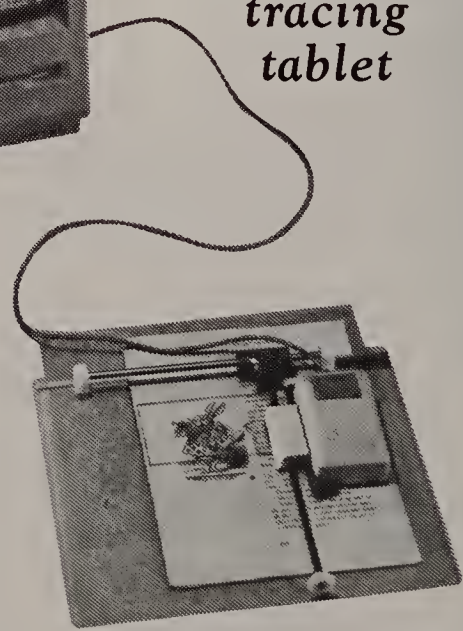

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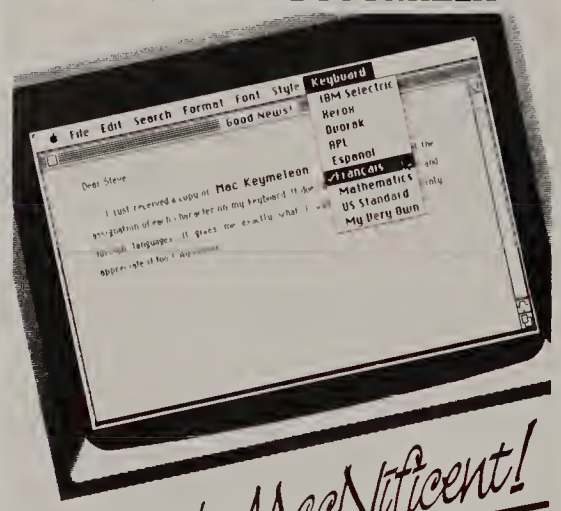

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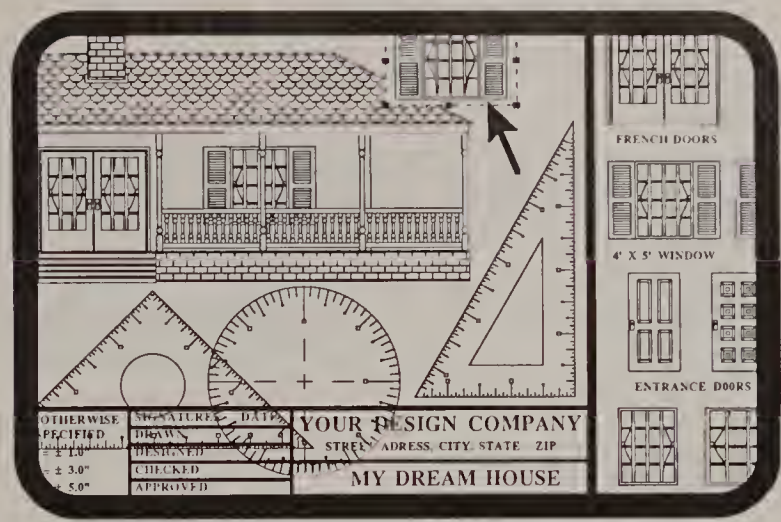

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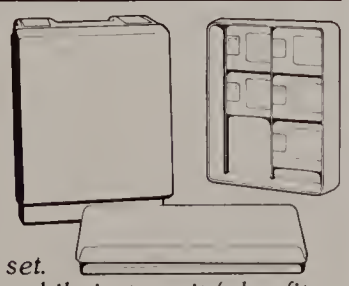

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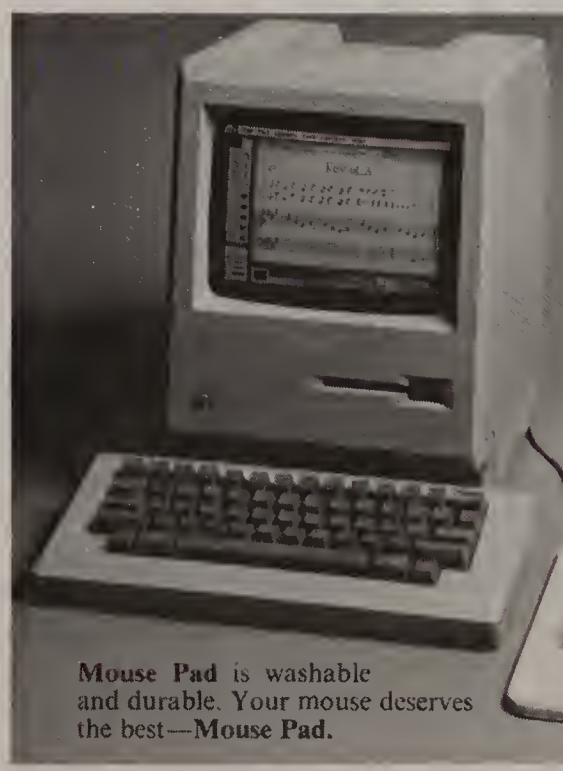

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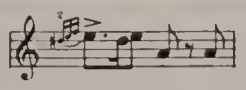

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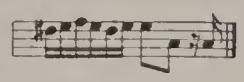

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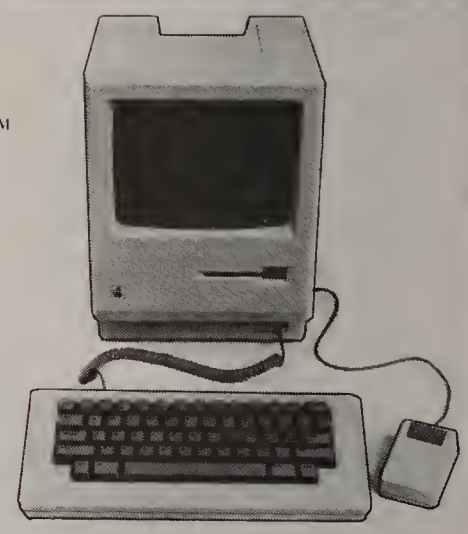

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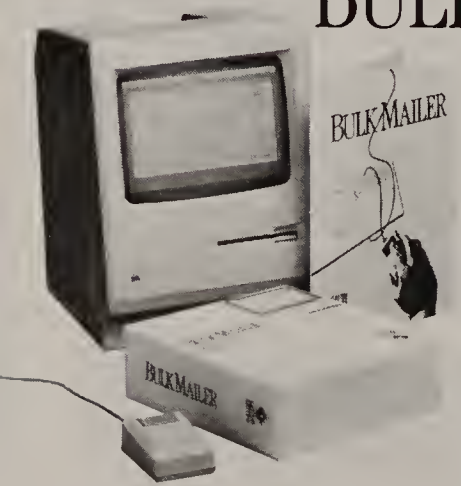

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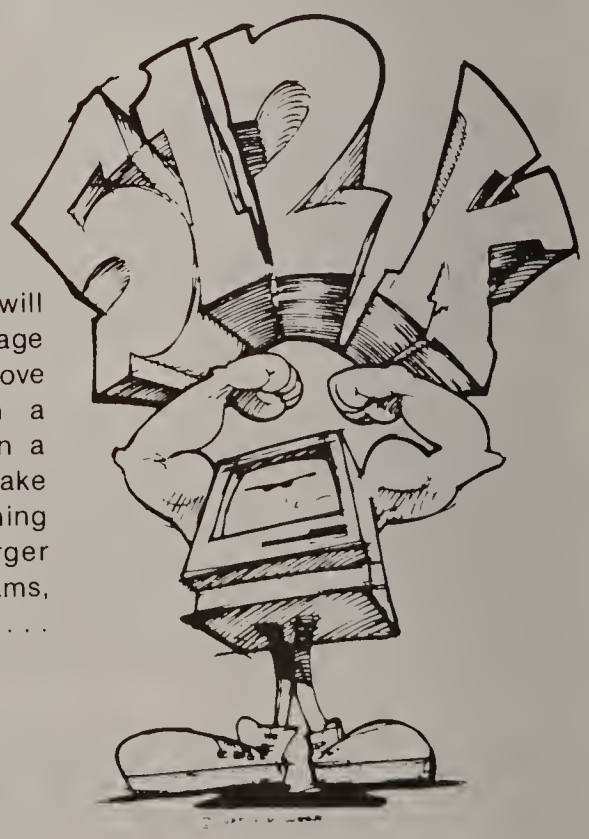

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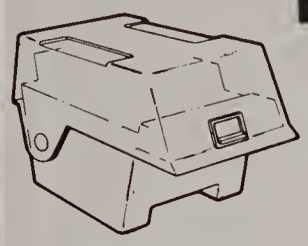

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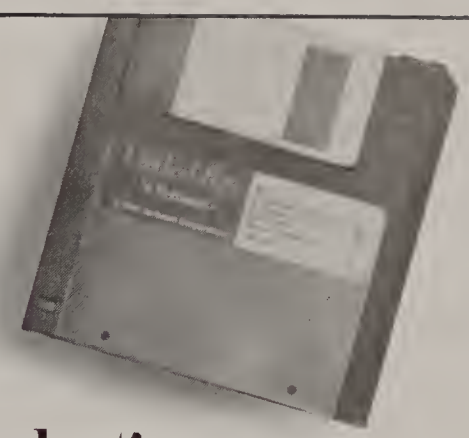

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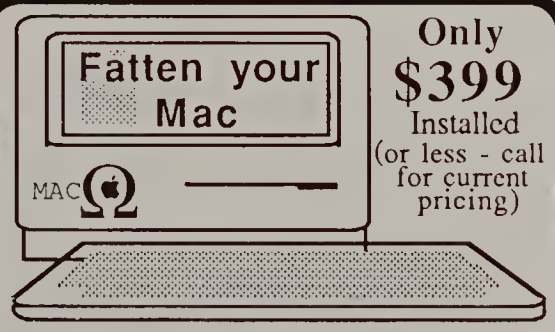

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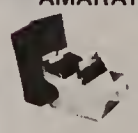

Every once in a while, someone takes the simple and makes it elegant! This unit holds 50 5¼" diskettes, has grooves for easy stacking, inside nipples to keep diskettes from slipping and several other features. We like it! **$10.95** ea. + $2.00 Shpng.

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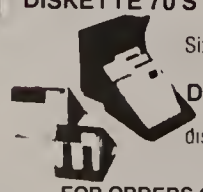

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Macworld Directory

The Macworld Directory is a comprehensive listing, by category, of products and services available for the Apple Macintosh. It provides advertisers with a low-cost advertising alternative and our readers with an easy reference guide.

FORMAT: The standard format includes a product ID, a 300-character descriptive ad, and company name, address, and telephone number.

Advertisers may choose among categories already in use, or they may create their own. Display advertisers can cross-reference their current ad to the Macworld Directory for increased exposure.

RATES: Listings are accepted for a three-time consecutive insertion at a rate of $627. We offer a six-time insertion at $1,068 that reflects a 15% frequency discount. Listings must be prepaid (except for established display advertisers) upon submission of ad copy. Checks, money orders, VISA and MasterCard are accepted.

DEADLINE: For copy deadlines and further information please contact Niki Stranz, your Macworld Directory Account Manager, at 415/861-3861 or 800/872-7800 (800/872-7808 in California). Please send copy and prepayment to the Macworld Directory, 555 De Haro St., San Francisco, CA 94107.

■ *Accessories*

○ *Cables*

Mac Custom Cables
The Mac-Modem cables mate with the Hayes (RS232) 1200 and compatible modems and match Mac's original molded cable style and color. The Mac-Printer cable mates with any Mac-compatible RS232 serial printer both are complete with Thumbscrews and full shielding. $29.95.
N² Products, Inc., 408/435-0227, 619/243-3632

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○ *Interfaces*

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208-5647 Yonge St., Toronto, M2M 4E9, Canada, 416/225-8815

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The Mentauris CVA
Provides any Mac with a high-quality video output port. Ideal for all large-screen viewing applications. Easily installs internally, no soldering, splicing, or mounting hardware required. Housing disassembly tools also available. Call for competitive pricing, product brochures, and technical assistance.
Mentauris Technologies, P.O. Box 1467, San Marcos, TX 78667-1467, 512/396-1565

■ *Publications*

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Pulsetaker of the world. User-created. Editor's goal: to window new kinds of creativity made possible by Macintosh™. Submit (on disk) whatever you'd like to share with the world of Mac users and get first disk-issue free! Or send a blank disk & $5 to:
Omegaman Productions, P.O. Box 278, Islesboro, ME 04848 (This ad runs in 27 countries)

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A Reference Guide to Shapes, Sizes and Styles. Written for the non-technical user, it includes over 100 pages of complete font listings and many useful appendices. A must for anyone who needs to present text professionally. Send $14.95 plus $2.50 postage & handling. In CA add $.90 sales tax.
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LASER Preview Edition $1
FIND IT FAST! Encyclopedia-like digest of all Mac magazine, trade journal, newspaper, newsletter articles, vendor press releases organized by topic, w/ original reviews/editorial. Speeds getting facts you need. Learn inside tips/opinions from real users. Bimonthly, to be monthly. 1 year $12. MC/Visa. *MacBriefs™, P.O. Box 2178, Huntington Beach, CA 92647, 714/842-0518*

■ *Software*

○ *Accounting*

INVENU
Inventory with POS available now runs on 128K Mac with external disk drive. Prints price lists, re-order lists, price lables, monthly sales summary, and sales invoices from register sales. Allows item inquiry, uses average cost method & tracks floor planned items. Written in MBASIC. Source code option.
Eureka Computer Systems, 1419 W. 7th Ave., P.O. Box 2308, Corsicana, TX 75110, 214/872-2501

○ *Artificial Intelligence*

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Lost patience–and brain cells–since age 12? In short, can't solve the Puzzle? You need PuzzleBuster™, an application of the AI Engine™. Disk includes AI tutorial. *"Great!"–Bill Atkinson.* Only $12.95 + 50¢ s/h. Send check/MO to: *Knowledge Engineering, G.P.O. Box 2139, New York, NY 10116*

○ *Assemblers*

MacASM Macro Assembler
Assembly language programming with no other hardware and software needed. Program applications that run under their own icon. You work in an integrated full screen environment in which all parts of an Edit-Assemble-Test-Edit cycle can be performed. Complete development system. Easy to use. $125.
Mainstay, 28611B Canwood St., Agoura Hills, CA 91301, 818/991-6540

○ *Business*

Zipfinder
analyzes your mailing list files created with virtually any database program and automatically inserts the correct zip codes into the zip code

fields. Also verifies existing zip codes on file and finds zips according to addresses entered by operator. Sold by state or partial state. *SoftIdea, 8177 S. Harvard #619, Tulsa, OK 74137, 918/745-9792*

○ *Compilers*

Consulair Mac C™ & Toolkit

Mac C–a C compiler for the Macintosh.
Mac C Toolkit–A Support Library of Mac C.
From the creators of Apple's MDS System. A full K&R C development system that accesses all Macintosh ROM routines. Allows development of pure Macintosh applications and now includes floating point.
Consulair Corp., 140 Campo Dr., Portola Valley, CA 940 25, 415/851-3849

○ *Data Acquisition*

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Macintosh based data acquisition systems with MACQUISITION software that makes data acquisition as simple as using a spreadsheet. Includes 16 analog channels and 16 digital channels with intelligent frontend. Priced under $3300 from SBNE-an approved Apple VAR. Demo disk available for $10.
Small Business Computers of New England, Inc., Box 397, 4 Limbo Ln., Amherst, NH 03031, 603/673-0228

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Chariot Software Group, 3659 India St., San Diego, CA 92103, 619/298-0202

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Millett Software, 146 West 255 South, Orem, UT 84058, 801/224-6841

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Digital Logic Design Aid

LogiMac is an interactive digital logic drawing and simulation package for the Macintosh. It is intended for use by engineers, students, teachers, and hobbyists interested is designing, documenting, and experimenting with digital logic hardware. It supports most common gates, flip-flops, etc. $59.95.
Mitek, 554 Beatty St., Vancouver, B.C. V6B 2L3 Canada, 604/684-0402

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Buy your Apple II, Macintosh, IBM, Commodore, Atari, CP/M, etc., software at lowest wholesale prices. Full export service, quick delivery. Send for confidential dealers' export price list. Over 150 Macintosh titles available. Foreign or local individuals send for best discount price list.
Macsoft Source, 6512 Faith Peak Dr., Las Vegas, NV 89108, 702/870-8399

○ *Font System*

ClickArt Letters

is a high quality lettering system consisting of 24 large alphabets (24, 36, 48, & 72 point) to create fliers, posters, and overhead transparencies. Each alphabet is either an installable Font or a MacPaint Typeface File. The Typeface files provide alphabets larger than those possible in font form. $49.95.
T/Maker Graphics, 2115 Landings Dr., Mountain View, CA 94043, 415/962-0195

○ *Games*

***** NewGammon–$39.95

Backgammon with more features means more fun! Animated dice and pieces. Music. Instructions, rules and strategy tips. Adjustable skill levels. Doubling cube. Set up any board position. Save games in progress. Play against the Macintosh or a friend. Arcade-style race game included! Ask for NEWGAMMON!
New Soft, Box 4035, Newport Beach, CA 92661, 714/646-9949

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Explore Colossal Cave in the exciting Adventure that started them all. Find treasures. Outsmart trolls. We give you the unsecured BASIC source code, so not only can you play the game, you can see how Adventure games are programmed. Requires MS-BASIC $29.95. Order direct from:
LW James & Associates, 1525 E. County Rd. 58, Fort Collins, CO 80524, 303/484-5296

○ *Graphics*

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is a MacPaint desk accessory that begins where MacPaint left off. With it you can ROTATE an image to any angle, SLANT words or pictures forward or backward, add PERSPECTIVE to an image, or DISTORT it by pulling on any corner. The new tools all work from within MacPaint & are used without leaving MacPaint. $49.95.
T/Maker Graphics, 2115 Landings Dr., Mountain View, CA 94043, 415/962-0195

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Freemyers Design, 575 Nelson Ave., Oroville, CA 95965

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graphics is for people who have the creative urge to draw but lack the time, patience or experience to produce good illustrations. The product offers over 100 professionally drawn images, ranging from portraits of contemporary celebrities, animals, & cars to borders, arrows, and other useful symbols.
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Aurora Borealis Computer Graphics, 1033 Battery St., San Francisco, CA 94111

ClickArt Publications

contains practical images for enhancing business communications & creating newsletters & announcements. It incl. over 200 images ranging from illustrated alphabet letters, column headings, illustrated phrases (Notice, Letters to the Editor, On Vacation), people, cartoons, borders & maps of the USA & Europe.
T/Maker, 2115 Landings Dr., Mountain View, CA 94043, 415/962-0195

○ *Index*

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◯ *Languages*

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An object-oriented programming language, NEON™ offers a Smalltalk-like environment implemented as an efficient threaded language to provide new power, flexibility and speed for developing for the Mac–on the Mac. $150.
Kriya Systems, Inc., 505 N. Lake Shore Dr. #5510, Chicago, IL 60611, 312/822-0624

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Greer Software Products (mw), Box 268, Annandale, VA 22003

◯ *Miscellaneous*

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- MAC SAMPLER: potpourri of 10 programs incl. Biorhythm, Calendar, Cryptogram. $14.95.
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- MAC BUSINESS: General Ledger for the small business. $24.95.

30 day unconditional guarantee. Req. MS-BASIC 1 or 2. All for $59.95. MC/Visa/check.
Dimensional Disks, P.O. Box 1180, Blaine, WA 98230, 604/585-1986

◯ *Personal Mgmt.*

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Jovian System Software, P.O. Box 6993, New Orleans, LA 70174-6993, 504/392-8538

◯ *Spreadsheets*

ClickOn Worksheet

provides a Spreadsheet with Graphics as a desk accessory allowing it to run within MacWrite or other applications. The full-functioned 50 × 20 spreadsheet incl. NPV, FV/PV, compound growth & logical operators. Bar, Line, & Pie charts are generated directly from the spreadsheet & are automatically updated when it is recalculated. $79.95.
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Quickset is an integrated desk management tool that will work concurrently with other Mac programs or as stand-alone applications. Quickset includes a notefiler, cardex, encryptor, calendar, financial calculator, and a statistical calculator. Quickset allows indexing, storage and information retrieval by Icons.
Enter Set, Inc., 410 Townsend #408B, San Francisco, CA 94107, 415/543-7644

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MacFits is a data analysis program for the Mac. It contains 8 different models (1st-5th order, log, power & exp). The data can be analyzed by up to four models at once. It can transfer data to and from *Multiplan*™ and *Chart*™. Requires Microsoft BASIC. $39.95 + $2.50 s/h. TX residents add sales tax.
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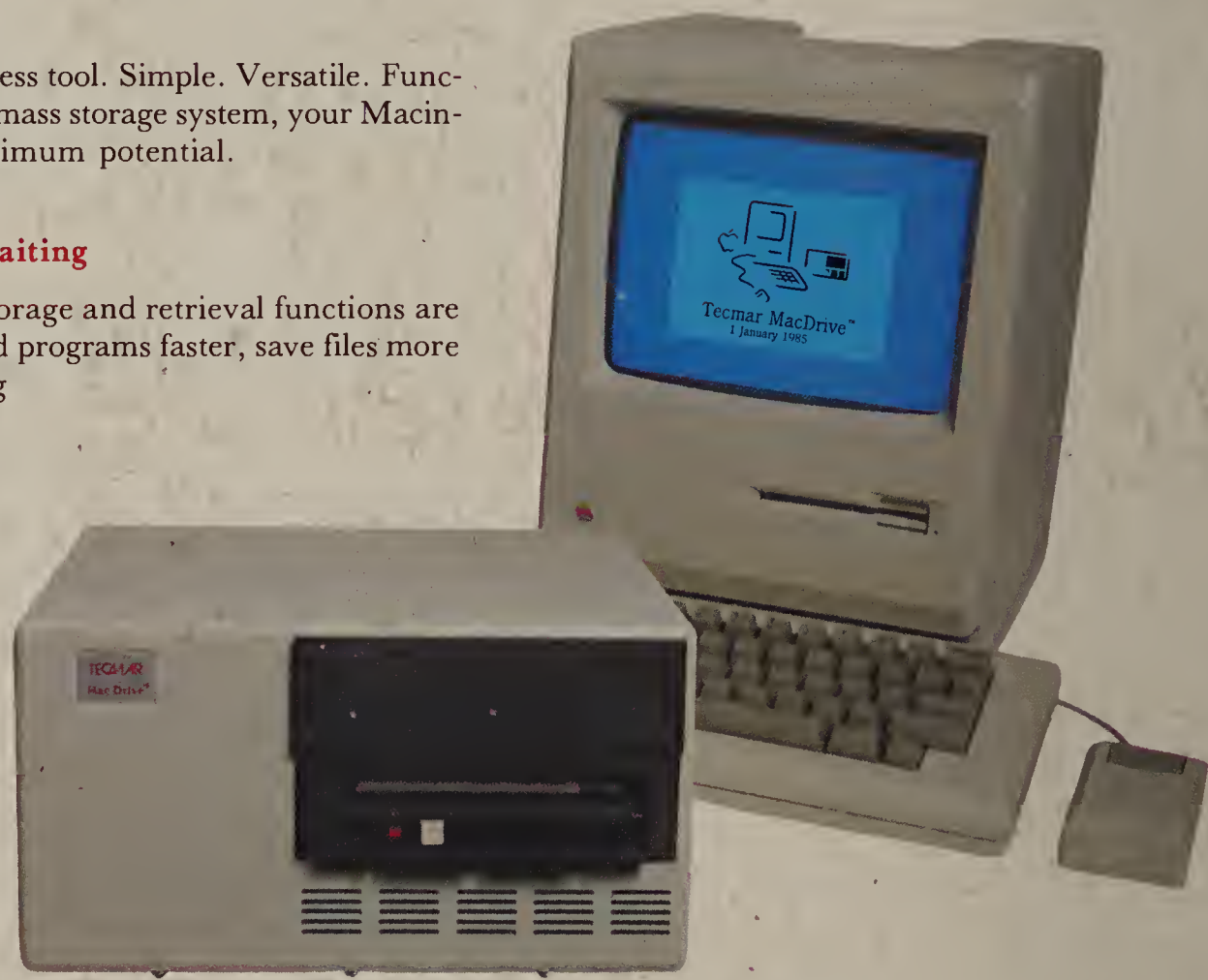

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Your data storage capacity is limited only by the size of the drive you choose. And, regardless of the size of any given file, you can back it up onto floppy disks. MacDrive will even tell you when it's time to put in a fresh floppy.

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Thanks to a special partitioning feature, MacDrive software lets you divide the MacDrive into separate, manageably sized volumes. For example, our 10 megabyte hard disk system can be broken up into 20 partitions. So you can set up separate categories for your correspondence, presentations, reports, spreadsheets, games and so on. This smaller-scale organization also means your Macintosh will be able to retrieve the files you want more efficiently.

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You've got four great choices

MacDrive is available in four flexible configurations:

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- * 5 megabyte removable hard disk
- *10 megabyte fixed hard disk plus 5 megabyte removable disk
- *Two 5 megabyte removable disks

If you'd like to see a Macintosh working to the max, stop in at your nearest Tecmar dealer for a MacDrive demonstration. To find out who that dealer is, call Tecmar at 216/349-1009.

Tecmar

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